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THE TRANSACTIONS OF THE ZOOLOGICAL SOCIETY OF LONDON

Editor . . . . . L. HARRISON MATTHEWS, F.R.S.

Clerk of Publications . . . G. B. STRATTON, M.B.E.

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KEYS TO THE ETHIOPIAN TACHINIDAE—III MACQUARTIINAE

BY

The late F. I. VAN EMDEN

Commonwealth Institute of Entomology

(Accepted 12th May, 1959)

(With 11 figures in the text)

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[The present report was completed by Dr van Emden with the exception of one description, of the figures (to which, however, he had made reference in the appropriate places) and of the section dealing with the biology of the group. The biological data have kindly been summarised by Dr S. V. Peris, of the Instituto de Edafologia, Madrid, and the bibliographical references at the end of the paper were provided to support this part.

It had been van Emden's intention to include a paragraph of thanks in the introduction. This was not completed, but acknowledgments of help received are given at various places in the text, and on his behalf thanks are here tendered to the authorities of the British Museum for the facilities which they have so kindly afforded.

The present annotator is responsible for the description of *Marskolliomyia* and its single species, for the text figures and for following the original orthography of the generic names *Acemya*, *Lunaemyia* and *Echinomyia*. As both forms of the latter part of each of these names (*myia*, *myia*) are given in the lexicon and as the original orthography corresponds with one of them, there is no evidence of positive error. None of the subsequent emendations has been placed on the Official List of Generic Names and all must be held to be invalid.—R. G. Fennah.]

INTRODUCTION

The Macquartiinae, the third subfamily of Tachinidae in this series, is very much larger than the two subfamilies studied hitherto (Phasiinae, 1944, *Proc. zool. Soc. Lond.* **114** : 389–436, and Dexiinae, 1947, l.c. **116,** 627–674). Most of the introductory remarks to the first paper of the series also apply to this paper. In its present scope the subfamily was first defined by Mesnil

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INTRODUCTION

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(1939) under the name Larvaevorinae, but a similar group had previously been outlined in its main contents and in some of its characters by Villeneuve (1924, 1932) under the name Protachininae. The latter name is not derived from a " type genus " and is therefore not available under the " Rules ", and the name *Larvaevora* Meigen 1800 appears likely to be suppressed. Actually, *Larvaevora* Meigen 1800 does not belong to the present group, although most authors have accepted Hendel's (1908) identification of *Larvaevora* Meigen 1800 with *Tachina* Meigen 1803 and the alleged absence of *Exorista* Meigen 1803 from the 1800 paper. In fact, the descriptions of *Larvaevora* and *Exorista* are practically identical (antennae with two segments, the " second " prismatic, etc.) whereas that of *Tachina* is very different (antennae with three segments, the second cylindrical, the third subcircular). The only species mentioned under *Exorista* is *larvarum* F., to which the description of the antennae of *Larvaevora* applies, and the generic name of 1800, like the specific name of 1803, refers to the typical parasitism of caterpillars by this species. *Larvaevora* is thus synonymous with *Exorista* Meigen 1803, *Eutachina* B.B.1890, and *Tachina* Meigen 1838 and does not fall in the present subfamily. The oldest available name for an aggregate containing one of the genera now in this group appears to be Macquartiinae (" Macquartidae " Robineau-Desvoidy 1830, p. 203).

In the genera composing this subfamily 113 species have been described before, but twenty of them have to be relegated to synonymy and one to varietal status. Seven genera and fifty-eight species are described as new.

Literature and synonymy are not cited so far as they are found in Townsend's " Manual of Myiology " and Becker's "Kat. pal. Dipt.", or, so far as biological literature is concerned, in Cuthbertson and Munro's " Some records of tachinid parasites and their insect hosts in southern Africa " (1941, *Trans. Rhodesia sci. Ass.* **38** : 88–118).

Species marked with an asterisk (*) have been incorporated from the literature, as specimens are not available. The types of the new species are in the British Museum (Natural History).

The first two connate abdominal segments are counted as one, so that the last entirely free tergite is the fourth.

Abbreviations

Abbreviations used in describing the legs :—*a*, anterior ; *ad*, antero-dorsal ; *av*, antero-ventral ; *d*, dorsal ; *p*, posterior ; *pd*, postero-dorsal ; *pv*, postero-ventral ; *v*, ventral. In using these expressions one should imagine the leg extended in a straight line at right angles to the longitudinal axis of the body.

Other abbreviations

acr,	acrostichal bristles (hairs)	*ia*,	intra-alar bristles
B.M.,	British Museum (Natural History)	*m*,	fourth vein
C,	costal cell (2*C*, second costal cell)	*m-m*,	posterior cross vein
c,	costa	*npl*.	notopleural setae
dc,	dorsocentral bristles	*ph*,	posthumeral seta
h,	humeral cross-vein	*post*,	postsutural

pra, prealar bristle
prsc, prescutellar
prst, presutural
R_1, marginal cell
R_3, submarginal cell
R_5, first posterior cell
r_1, first vein
r_{2+3}, second vein
r_{4+5}, third vein
rs, radial sector
r-m, small cross vein
sa, supra-alar bristle
sc, auxiliary vein
Sc, pterostigma (sub-costal cell)
stpl, sternopleural bristles

DEFINITION OF THE SUBFAMILY MACQUARTIINAE

Tachinidae with the prosternum bare *or* the *pv* apical seta of the hind tibia well developed (usually both these characters present simultaneously), reclinate frontal setae absent. Normally 3 *post ia*, if only 2, the first is missing. Jowls narrower than the combined length of the second and third antennal segments, *or* if not, with a well-developed occipital dilation. Face without a keel between the antennae (except in *Euthera*). Arista not plumose (except in Thelairini).

There can be no doubt that the division of the subfamily into two main groups of tribes according to the development of the basal dorsal excavation of the abdomen (Mesnil, 1939) or the relative position of the mouth margin and the vibrissae (van Emden, 1954) is a natural one. Similarly the classification of the second of these groups containing the Echinomyiini and Leskiini is largely uncontroversial, the only problem, which is an interesting one, being posed by the *Aphria*-group. Mesnil, using the dorsal excavation as the decisive character, placed the Leskiini in what is here treated as the first group and the Aphriini (as Aphriina) in the second, mentioning that the Aphriine genus *Bithia* had the excavation of the first group. In studying the British fauna I brought the Leskiini into the second group, using the projecting mouth margin, because the type of the abdominal excavation is subject to a considerable number of exceptions, but left the *Aphria* group in Echinomyini. The present revision of the Ethiopian species has shown that it is desirable to go even further by uniting Aphriini and Leskiini in one tribe, the two groups being connected by several intermediate forms and in fact very closely related.

Many more problems arise in the first group of tribes, and the solution offered here is in many ways based more on expediency than on scientific convictions. Nevertheless, it appears that Wagneriini and Campylochaetini are closely related, and the same applies to Thelairini and Minthoini. The position of Germariini and Nemoraeini close to the latter tribes can also be assumed to be correct. The definition and contents of the Macquartiini and Helocerini and the position of the Acemyini in the present subfamily remain wholly problematic.

BIOLOGY OF THE ETHIOPIAN MACQUARTIINAE

Little is known concerning the biology of Ethiopian species of this group of flies. The following list of records is possibly incomplete, as several papers have not been available for examination.

Wagneria carbonaria Panz. is known as a parasite of *Euxoa segetum* Schiff. (Noctuidae) in S. Africa and also of an unidentified moth larva ; in Europe this species also parasitises Noctuidae such as *Hoplodrina alsines* Brahm, *Agrochola circellaris* Hufn. and *Lacanobia w-latinum* Hufn. *Nemoraea capensis* R.D. has been recorded from S. Africa from *Heliothis armigera* Hbn. and *Diparopsis castanea* Hmps. (Noctuidae), and *Nemoraea fortuna* Curr. from *Dasychira goodi* Holl. (Lymantriidae). *Thelaira nigripes* F. is a parasite of the arctiid, *Diacrisia flaca* Wllgrn. and *Thelaira palliventris* Curr. of *Diacrisia maculosa* Stöll. *Dejeania bombylans* F. attacks *Heliothis armigera* Hbn. in S. Africa and *D. wollastoni* Aust. was obtained from Lepidoptera pupae collected on the Ruwenzori Expedition. *Paratachina obliqua* Lw. makes yet another parasite of *Heliothis armigera* in S. Africa, while *Cuphocera haemorrhoidalis* Macq. is recorded from *Agrotis segetum* Schiff. and *Laphygma exempta* Walk., and *hova* Villen. from *Leucania loreyi* Dup.

Linnaemya is the genus with most African records. The following have been found, all in S. Africa if not otherwise stated : *Linnaemya affinis* Corti recorded from *Heliothis armigera* Hbn. and *Leucania leucosticha* Hmps.; *L. agilis* Curr. from *Diparopsis castanea* Hmps. and *Heliothis armigera* Hbn. and also from the latter in Tanganyika. *Linnaemya alboscutellata* Speis. from an unidentified caterpillar (probably *Heliothis armigera* Hbn.) and *L. angulicornis* Speis from *Leucania loreyi* and *Leucania leucosticha* Hmps. No host record for *Linnaemya comta* Fall. has been found for Africa, but in Europe the species parasitises *Hyloicus pinastri* L. (Sphingidae), *Saturnia pavonia* L. (Saturniidae), *Agrotis typsilon* Rott. and other species of Noctuidae of the genera *Laphygma*, *Peridroma*, etc. *Linnaemya conformis* Curr. is recorded from *Phytometra* sp. (Noctuidae), and *laxiceps* Villen. from *Diacrisia lutescens* Walk. (Arctiidae) in S. Africa. *L. longirostris* Macq. in S. Africa and Uganda from *Helopeltis armigera* Hbn. and *Phytometra limbata* Guen., *L. parcesetosa* Vill. parasitises *Earias insulana* Boisd. (Westermanniidae) in S. Africa and *L. obscurior* is recorded from the same species in Tanganyika. Finally *L. variegata* Wied. has been recorded in S. Africa from the limacodid *Coenobasis amoena* Feld.

Apart from these records the following general remarks can be made. The genus *Macquartia* is normally found on coleopterous hosts (Chrysomelidae) but there is a doubtful record from Lepidoptera (Pyraustidae) ; the flies are said to be larviparous or oviparous. *Wagneria* parasitises mainly noctuid caterpillars. The hosts of *Campylochaeta* itself are mainly Geometridae ; there are, however, records of other Campylochaetini from Sphingidae, Notodontidae, Lymantriidae and Arctiidae. Members of the Helocerini are the most varied in their choice of hosts; they attack principally Lepidoptera but there are records of other non-Ethiopian genera from Dermaptera, Diptera (Syrphidae) and a myriapod. Some at least are larviparous. The Nemoraeini seem to be parasites of Lepidoptera (Noctuidae, Sphingidae, Arctiidae, Geometridae) whereas the Acemyini, as far as is known, are exclusively parasites of Acrididae (*Anacridium*), though there is an isolated record of a species from a noctuid. Of the biology of the Germariini no records have been found. The Thelairini attack caterpillars of larger Heterocera (Sphingidae, Notodontidae, Lasiocampidae, Noctuidae and specially Arctiidae), and seem to be oviparous

on the hosts. Minthoini are recorded as being oviparous, and parasitise Pyralidae and Noctuidae in Europe. Leskiini, also oviparous, parasitise Lepidoptera, principally Aegeriidae but also Tortricidae, Pyralidae, Arctiidae, Noctuidae and a species has been recorded from a nymphalid.

In the tribe Echinomyini the Ernestiina parasitise moths of the following groups : Notodontidae, Geometridae, Noctuidae, Lymantriidae, Lasiocampidae, Arctiidae, Sphingidae, Saturniidae, Thyatiridae, as well as nymphalid butterflies ; they belong to Pantel's 4th group in which the females are oviparous or larviparous. The Linnaemyina have as hosts species of Noctuidae, Arctiidae, Aegeriidae, Sphingidae and Lymantriidae and the Echinomyina, Sphingidae, Noctuidae and Lymantriidae. In Europe *Peletieria* parasitises *Papilio*, *Agrotis*, *Arctia* and *Lymantria*, and *Echinomya* Arctiidae, Noctuidae, Sphingidae, Lymantriidae and Lasiocampidae : both belong to the 4th group of Pantel.

In general the Macquartiinae appear to be parasites of Lepidoptera, mainly of large Heterocera. Of the Ethiopian groups the only exceptions are *Macquartia* and the acemyin *Ceracia*. The affinities of this tribe are still obscure and its members show features of both the Tachininae (Phorocerinae *sensu* Mesnil) and the Phasiinae. Some members of the Helocerini, at least, seem to be relatively polyphagous, while others seem to have found hosts among arthropods outside the Insecta.

The economic importance of the group may be great, as among their hosts figure most noxious Lepidoptera of economic importance, including cutworms and the bollworms (*Diparopsis castanea* Hmps. and *Earias insulana* Boisd.), both among the most important pests of cotton in Africa.

Key to the Tribes of Ethiopian Macquartiinae

1 (18). Mouth-margin not projecting between vibrissae (except in *Euthera* where it projects, but much less than middle of clypeus). Posterior surface of hind coxa bare.

2 (17). Fore tarsi not markedly compressed laterally (in *Allothelaira* slightly compressed and dilated towards apices of the segments). Clypeus without a median keel.

3 (10). Occiput with numerous black setulae behind upper part of occipital row (except in a few *Wagneria*).

4 (9). Scutellum with 2–3 strong marginals, the distal ones rather close together and decussate or diverging, between them no pair of smaller setae. Integument dark.

5 (6). Basal dorsal excavation of abdomen often not reaching hind margin. Basal half of scutellum without erect discal setae (but sometimes the decumbent preapical setae shifted to middle), apical scutellars decussate, only 1–2 further pairs of marginal scutellars present. Facial ridges and parafacialia (in Ethiopian species) without strong erect setae on intermediate part (but sometimes with small setae). Ocellars proclinate or indistinct. r_{4+5} setulose only on and near basal node, bend of m without an

appendage (*). Hind tibia normally with ** a small *pv* apical spur. Body more or less slender..... 1. Macquartiini.

6 (5). Basal dorsal excavation of abdomen reaching hind margin. Facial ridges or parafacialia with strong erect setae on intermediate part. Either ocellars reclinate or r_{4+5} setulose at least to *r–m*. Subapical setae of scutellum absent, or much weaker than the apical and lateral setae, so that the pair of strong setae next to the apical ones is apparently "subapical", but is at least as distant from apex as from base of scutellum. Peristome usually without an occipital dilation. Hind tibiae without or with a small *pv* apical seta.

7 (8). Facial ridges bare except close to vibrissae, but parafacialia (in Ethiopian species invariably) with a row of strong setae, which are curved downward. Ocellars proclinate, r_{4+5} setulose at least to *r–m*; bend of *m* almost always prolonged. Frons more or less broad in both sexes..... 2. Wagneriini.

8 (7). Facial ridges with strong and subequal setae ascending more than halfway to lunula, parafacialia without setae. Propleural depression setulose. Ocellars reclinate. r_{4+5} with a few setulae on the basal node only; bend of *m* not prolonged. ♂: frons without proclinate orbital setae.... 3. Campylochaetini.

9 (4). Scutellum with 3–4 strong marginals, the distal ones rather close together and not decussate, between them a pair of small diverging or parallel apicals. Integument pale testaceous or pale ferruginous..... 4. Helocerini.

10 (3). Occiput with only pale hair behind occipital row. Subbasal and subapical marginals of scutellum strong. Apical cross-vein ending well before wing-tip from which it is separated by conspicuously more than length of *r–m* (except *Allothelaira*). Mid tibia with several strong *ad* setae.

11 (12). Lateral scutellars well developed. Eyes (normally) densely hairy; dorsal surface of lower calyptra hairy at least near margin, arista tapering, not geniculate. *pv* apical spur of hind tibia well developed. Frons of male narrower than that of female. Apical cross-vein ending well before wing-tip from which it is separated by conspicuously more than length of *r–m* (except *Allothelaira*). Mid tibia with several strong *ad* setae..... 5. Nemoraeini.

12 (11). Lateral scutellars absent or weak. Eyes almost completely and dorsal surface of lower calyptra, bare.

13 (14). Third antennal segment produced into a sharp spine-shaped point at dorsal (anterior) end. Subapical marginals of scutellum about as widely separated from base as from tip. Arista not geniculate, the second segment only slightly

* *m* with a conspicuous genuine appendage, other characters as in Dufouriini, but 3 *post ia* present: a new genus near *Rondaniooestrus* Villen.

** Genera in which the *pv* apical spur of the hind tibia is absent and in which at the same time the apical scutellars are very small or absent, the most distal pairs of strong setae diverging, are placed in Meigeniini even if the prosternum is bare. *Pelashyria* is also placed in Meigeniini although it is unknown whether the hind tibia has a *pv* apical seta, and although Mesnil (1939) included it in Macquartiini. *Pelatachina* was considered to belong to this group also, and in 1954 I accepted this view. However, I am now of the opinion that *Pelatachina* (without apical scutellars and *pv* apical setae on the hind tibia and sometimes with setulae on the prosternum) should be transferred to Meigeniini. The limits between Meigeniini and Macquartiini, however, are very indefinite.

longer than wide. *pv* apical spur of hind tibia small or absent. Frons of male narrower than that of female. Prosternum often setulose (always so in Ethiopian species) 6. Acemyini.

14 (13). Third antennal segment narrowly rounded at dorsal (anterior) end. Subapical marginals of scutellum closer to apex than to base (except in *Allothelaira*, in which the arista is short-plumose (if *both* these characters do not apply see *Wagneria*)). Apical cross-vein ending well before wing tip from which it is separated by conspicuously more than length of *r–m* (except *Allothelaira*). Mid tibia with several strong *ad* setae.

15 (16). Arista geniculate, incrassate to near tip, bare. *pv* apical spur of hind tibia well developed. Frons of both sexes very broad ..... 7. Germariini.

16 (15). Arista not geniculate, tapering, short plumose (*). *pv* apical spur of hind tibia absent. Frons of male narrower than that of female. *prst* and *post acr* present..... 8. Thelairini.

17 (2). Fore tarsi conspicuously compressed laterally, at least the proximal segments parallel-sided, not dilated to apices and with very short and fine setulae (Fig. 1). R_5 often closed in margin or petiolate. Scutellum with 3 pairs of marginals, the subapical ones much nearer apex than base ; preapical scutellars and *post acr* (inc. *prsc*) absent, except in *Euthera*. Abdomen more or less compressed laterally. r_1 bare ..... 9. Minthoini.

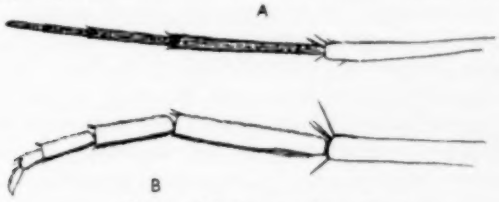

Fig.1.—*Mintho argentea* Bezzi.
A, fore tarsus, dorsal view. B, the same, lateral view.

18 (1). Mouth-margin conspicuously produced and projecting between vibrissae, always much more projecting than middle part of clypeus (less so in *Chromatophania*, but then posterior surface of hind coxa setulose).

19 (20). Scutellum with only 2–3 pairs of marginals, the lateral seta being as a rule hairlike or absent ; apical seta often fine or missing ; if the lateral scutellars are well developed, the apical ones are absent. Apical cross-vein straight or exteriorly convex (except in *Subfischeria*). Dorsal basal excavation of abdomen often incomplete. Elongate flies with long and slender legs. ♀ : frons with a (transversely-directed) prevertical seta..... 10. Leskiini.

20 (19). Scutellum with at least four pairs of marginals, the lateral seta always distinct. Anterior cross-vein concave exteriorly. Dorsal basal excavation of abdomen reaching hind margin of first segment. Mid tibia with several *ad* setae. More or less strongly built. First antennal segment markedly projecting. Hind tibia with a well-developed *pv* apical seta (except in *Schizolinnea*)..... 11. Echinomyini.

* Arista practically bare. Characters otherwise as in Thelairini, see *Cololeskia* in Leskiini.

Key to the sub-tribes of Echinomyini

1 (4). Hind coxa bare behind. Parafacialia bare on lower half or more, except sometimes when the palpi are small or vestigial, in these cases the hairs on the parafacialia all fine and setulose. Eyes as a rule more or less conspicuously hairy.

2 (3). Palpi of normal length, somewhat clubbed at apex, almost reaching mouth-margin. Bend of *m* with a short appendage which ends bluntly [or without an appendage]. Wings not spotted ..... Ernestiina.

3 (2). Palpi very short and narrowly band-shaped, often vestigial, never more than twice as long as width of mentum. Bend of *m* with a long appendage which tapers gradually, except in *Schizolinnea* (with banded wings)..... Linnaemyina.

4 (1). Hind coxa setulose on posterior surface. Parafacialia entirely hairy, sometimes with some strong setae, always with these if the palpi are small. Occiput without black setulae behind occipital row ..... Echinomyina.

1. MACQUARTIINI

It is by no means certain that the Ethiopian genera which will be traced to this group are all very closely related, but it is difficult to classify them in any other way. The central position which this tribe occupies in the phylogeny of the Tachinidae has been pointed out by Mesnil (1939, p. 23, 34, 41) and discussed by me in relation to the host-selection (1950, p. 205). It is therefore only to be expected that some genera should tend towards Rhinophorinae and others towards Meigeniini (=Blondeliini of Mesnil). Thus the first two genera, and more especially the first, seem to point in the former direction, but the well-developed postscutellum places them in Macquartiini if a reasonably strict classification is aimed at. On the other hand *Pelashyria*, *Succingulum* and other genera which I place in Meigeniini approach the present group in their bare prosternum, and the former has been included in Macquartiini by Mesnil (1939).

Key to the Ethiopian Genera of Macquartiini

1 (4). Antennae longer than greatest diameter of eyes, arista not longer than third antennal segment. Integument metallic green, blue or purple. Face strongly receding below. Scutellum with strong decussate apicals and with a sub-basal seta, with at most one seta between these two pairs. Excavation of first tergite not nearly reaching hind margin. 4 *post dc*. Palpi and antennae pale.

2 (3). Scutellum with only apical and basal marginals. Inner margin of lower calyptra diverging from margin of scutellum and longitudinal axis of body from base onwards (as in Rhinophorinae). Lower part of occiput strongly inflated, jowls, parafrontalia and parafacialia with glossy swellings. Legs pale ferruginous ..... *Chyuluella* gen. n.

3 (2). Scutellum, in addition to apical and basal marginals, with diverging lateral marginals. Inner margin of lower calyptra more rounded, its basal part scarcely diverging from longitudinal axis of body. Lower part of occiput convex but not inflated, jowls and anterior part of parafrontalia glossy and

more or less convex but without glossy swellings. Legs piceous, femora with metallic reflections..... *Porphyromus* gen. n.

4 (1). Antennae shorter than greatest diameter of eyes, arista longer than third antennal segment. Integument blackish, at most with some brassy reflections. Lower calyptra (in the known Ethiopian species) broadened posteriorly (of *Musca*-type) (*).

5 (6). Third antennal segment less than twice as long as second; arista pollinose or very finely pubescent. (3 *npl*. Parafacialia setulose in their entire length; descending frontals forming a rather irregular, usually double, row.) Hindmost *prst acr* at suture..... *Macquartia* R.-D.

6 (5). Third antennal segment more than thrice length of the short second; arista more or less long-haired. 2 *npl*. Parafacialia bare; descending frontals continuing the frontal row in irregular single file. Hindmost *prst acr* not behind level of second *prst dc*. Mid tibia with only 1 *ad*..... *Kinangopana* gen. n.

CHYULUELLA gen. n.

Rather slender, body with metallic reflections. *Head* somewhat swollen, especially lower two-thirds of occiput, somewhat reminiscent of certain Platystominae, parafrontalia and parafacialia with some roundish glossy embossed spaces, which are separated by dusted depressions, ocellars weak, somewhat proclinate, but more divaricate, frontal setae weak and reduced in number; lunula glossy, horizontal; occipital dilation very slight, but anterior lower part of occiput broad (high) and embossed, vibrissae short, almost indistinct, converging not meeting, facial ridges bare except for 1 to 2 setae near vibrissae, peristomatal setae small, clypeus concave on its entire length, mouth-margin not produced; antennae not much shorter than height of head, first segment conspicuously projecting upward and forward, second elongate with a complete deep longitudinal furrow, third very long, arista bare. *Thorax* with well-developed strongly convex postscutellum but only 2 to 3 hypopleurals, outer *ph* weak or indistinct, about level with the *prst*, 1+3 *ia*; scutellum with only two pairs of strong setae, the distal ones decussate, in addition with a weak pair of pre-apical discals and, on dorsal surface and basal part of ventrolateral surface, with decumbent black setulose hairs; 1+1 *stpl*, the anterior one weak; prosternum bare. *Abdomen* without outstanding setae; dorsal basal excavation faint and hardly reaching middle. *Wings* with bare veins, R_5 closed in margin or practically so, bend of *m* obtusely rounded, without an indication of an appendage or fold, apical cross-vein somewhat concave. Lower calyptra of *Phaonia*-type as in Rhinophorinae. *Legs* without outstanding characters, setae rather small; hind tibia without a distinct *pv* apical seta though the *pv* one of the apical setulae is somewhat stronger.

Type: *C. cribrata* sp. n.

The strongly developed postscutellum excludes this genus from Rhinophorinae, but most other characters would fit into that group better than into the present. The definition of both Rhinophorinae and Macquartiinae is

* *Styloneuria* (*Britea*) may be traced to this paragraph. The postscutellum is less developed, the eyes are bare, and the lower calyptra is that of Rhinophorinae, in which group *Styloneuria* is placed.

difficult enough without admitting further exceptions, so that it appears desirable to keep the classification somewhat rigid at least until much more is known about this and related genera, including their biology.

CHYULUELLA CRIBRATA sp. n. ♀

Head piceous to rufo-piceous, thorax and abdomen piceous black, on the pale-dusted parts, with strong bluish green, on the dark parts with conspicuous purple, reflections, abdomen on the pale-dusted parts with conspicuous oblong undusted dots, from which the hairs arise, thus with a " cribrate " pattern ; antennae, palpi, legs (including front coxae but excluding posterior coxae) pale ferrugineous, apical part of third antennal segment browned, tips of fore tibia strongly infuscated. *Head* with rather thin pale-grey dust on parts of occiput, with moderately dense dust on the low-lying parts of the anterior surface, the glossy areas are : a small one at the strong vertical setae, a small one at level of anterior ocellus, at and behind the small posterior proclinate seta (on the right side this is not bent forward but outward), a large embossed one which extends forward from the small anterior proclinate seta halfway to base of antenna, and on the posterior part of which 2 to 3 small inclinate (actually more proclinate) frontal setae are found, a large embossed one from hind end of lunula, at which level another somewhat longer but quite as thin inclinate frontal seta lies, to just below level of arista, and a moderately large somewhat oblique embossed one at middle level of third antennal segment ; the last two embossed areas separated by a narrow oblique band (extending downward from eye margin to facial ridge) of pale dust and followed below by a large dusted depression between these embossed spots and the occipital dilation; frons a third (0·32) head-width at vertex, strongly dilated forward with somewhat concave sides to lunula, where it is fully one-half (0·51) head-width, frontal triangle sharply defined, elongate, glossy, except for thin dust behind ocelli ; slightly exceeding middle of frons, interfrontalia matt, slightly narrowed to middle, where they are almost as wide as a parafrontale, parafacialia fully twice, jowls more than thrice, as wide as antennae. The latter slightly exceeding mouth-margin, second and third segments together longer than greatest diameter of eye, second not quite half as long as third, arista two-thirds length of third segment. *Thorax* rather thinly pale dusted on mesonotum, with darker dots carrying the hairs, apparently without vittae, shoulders and scutellum glossy purple ; apparently 1 +2 *acr*, but the *acr* setulae rather strong, 2 +4 *dc*, only the last one strong, *pra* conspicuous, but smaller than second *npl*, propleural and prostigmatal fine. *Abdomen* with basal two-thirds of first and basal three-fifths of second segment pale dusted, third and fourth wholly pale dusted except for a very narrow irregular narrow hind margin formed by the fused dots carrying the marginals hairs. *Wings* subhyaline with a strong pale-ochraceous tinge, r_1 practically reaching level of *r–m*, which lies slightly beyond middle of discal cell, *m–m* moderately oblique and slightly concave outwardly. Calyptrae greyish white subopaque with concolorous border and fringe. Halteres fuscous brown. *Legs* rather short, fore tibia with a small *pv* seta at apical third ; mid femur with 2–3 *pv* setae in basal third, mid tibia with an *ad* and a *pd* seta and a strong *av* towards apical

third and three strong *v* apical setae, the intermediate one longest and a third length of tibia ; hind femur with two strong *pv* setae in basal two-fifths and 2 to 3 *av* preapicals, hind tibia with 2 *av* and *pd* and 1 to 2 *ad* setae.

Length 6·1 mm., of wings 4·3 mm.

KENYA : Chyulu Hills, 4000 ft., vi. 38 (*Coryndon Mus. Exped.*) ♀ type, in B.M.

PORPHYROMUS gen. n.

Rather slender, body with metallic reflections. *Head* not swollen, occiput slightly and evenly convex, almost plane, parafrontalia and parafacialia in part glossy but not embossed ; ocellars diverging and proclinate, frontal setae normal, female with only one pair of proclinate setae, male with narrow frons and without proclinate frontal setae, lunula glossy, in female horizontal, in male level with frons ; occipital dilation well-developed, rather broad ; vibrissae (missing in male paratype) rather strong, meeting at tip, peristomal setae normal but not strong, facial ridges low, with a few hairs near vibrissae, otherwise bare, clypeus shallowly concave, mouth-margin not produced ; antennae as in *Chyuluella*. *Thorax* with well-developed strongly convex postscutellum and about five hypopleurals, outer *ph* distinct, slightly above level of *prst*, 1 +3 *ia*, scutellum with three pairs of strong marginals, the distal ones decussate, and also with a pair of rather strong preapical discals, but with only a few setulose hairs ; 1 +1 *stpl*, the anterior one less strong ; prosternum bare. *Abdomen* with strong median marginals on second and third segments and a row of discals and marginals on fourth ; dorsal basal excavation well developed, exceeding middle. *Wings* with a few setulae at base of r_{4+5} veins otherwise bare ; R_5 as in *Chyuluella*. Lower calyptra of an intermediate type, apical part rather broadly rounded, basal part of inner margin running about parallel with longitudinal axis of body. *Legs* without outstanding characters ; hind tibia without a *pv* apical seta.

Type : *P. caeruleiventris* sp. n.

Closely related and similar to *Chyuluella* from which it is excluded by the different shape of the head, presence of strong lateral scutellars, well-developed abdominal setae and setulose base of r_{4+5}.

PORPHYROMUS CAERULEIVENTRIS sp. n. ♂♀

Head glossy piceous, occiput with slight dark green reflections, thorax and abdomen glossy bluish green, shoulders, postalar callosities and postscutellum glossy purple blue, first abdominal segment, and median part of second, glossy piceous ; legs piceous, femora with metallic reflections, palpi and antennae orange, apex of third antennal segment strongly and broadly infuscated, the dorsal edge dark to base of arista. *Head* glossy on parafrontalia and upper two-fifths of parafacialia, lower part of temples and parafacialia silver-white dusted, the dusted area of the latter extending further upward along eye, where it is almost contiguous with a silver-dusted spot along eye-margin and opposite lunula, in female another dusted spot behind middle of parafrontalia, occiput and occipital dilation very thinly, clypeus, facial ridges and anterior part of jowls moderately densely, pale-grey dusted ; eyes

densely long-haired, especially in male, where they are separated by a fifteenth head-width ; male with interfrontalia rufous, evenly narrowed with straight sides from lunula to almost anterior ocellus, parafrontalia perfectly linear in more than posterior third, strongly dilated to lunula where they are fully as wide as interfrontalia, with 5 to 6 widely spaced inclinate setae from near apex of second antennal segment to middle of frons, outer part with some fine setulose hairs, ocellars long, verticals fine, hardly distinguishable from postocular row ; female with frons almost a third (0·31) head-width at vertex, strongly dilated with slightly concave sides to lunula, where it is one-half (0·49) head-width, frontal triangle sharply defined, glossy piceous with rounded sides and apex, interfrontal area rufous, somewhat narrowed from extremities to middle, where it is two-thirds width of a parafrontale, the latter with 6 not very strong inclinate setae from lunula to level of anterior ocellus, in addition 3 setae descending to apical level of second antennal segment, outer part with rather numerous fine erect setulae, ocellars moderately strong, verticals strong ; parafacialia in male fully, in female almost, as wide as third antennal segment, sparsely and finely setulose on their entire length. Third antennal segment reaching mouth-margin, $2\frac{1}{2}$ (♂)–3 (♀) times length of second segment, their combined length somewhat longer (♀) or somewhat shorter (♂) than greatest diameter of eye.—*Thorax* almost undusted in male, thinly whitish dusted in female ; 2+2 *acr*, 3+4 rather strong *dc*, *pra* conspicuous, somewhat shorter than second *npl* and first *post dc* ; propleural and prostigmatal moderately strong.—*Abdomen* oblong-ovate, almost undusted, the extremely thin whitish dust becoming visible only in a tangential view ; third segment with 2 lateral marginals, which are broadly separated from the median pair.—*Wings* subhyaline with pale testaceous veins ; r_1 markedly (♂) or slightly (♀) exceeding level of *r–m*, which lies slightly beyond middle of discal cell ; *m–m* in male somewhat oblique and conspicuously sinuous, so that both apical angles are sharp, in female hardly oblique and straight. Calpytrae greyish white subhyaline with concolorous border and fringe. Halteres fuscous.—*Legs* (lost in male paratype) rather short ; fore tibia with 2 *p* setae and a row of small *ad*, which terminates in a stronger one at apical third ; mid femur with a small *av* seta at base and 3 *pv* ones in basal two-fifths, mid tibia with a strong *av* and *ad* and 2 *p* setae ; hind femur with 2 small *av* setae in basal third, 1–2 decumbent fine *av* towards, and a strong preapical *av* at, apical fourth, and with 2 strong *pv* setae in basal third (the distal especially long and strong), hind tibia with 2 strong *pd* and 2 small *av* setae, *ad* surface with a row of setulae among which one at basal third is rather strong and one just beyond middle, strong.

Length 5·2–5·3 mm., of wings 4·0 mm.

KENYA : Naivasha, vii. 40 (*H. J. A. Turner*), ♀ type, iv. 40 1 ♂ paratype.

MACQUARTIA Robineau-Desvoidy 1830

In all Ethiopian specimens at hand three notopleurals are present, the third being much smaller and situated in front and a little below the level of the second. This seta is also present in many European specimens, but is rather variable in the various European species concerned. In the species

here considered the parafacialia are hairy in their entire length, the palpi orange, there are 3+3 or 3+2 *acr*, the halteres are pale reddish yellow, the lower calyptra is of *Musca* type, and the basicosta is brownish yellow.

Key to Ethiopian species of Macquartia

1 (4). 3 *post dc*. Preapicals of scutellum not much behind its middle (a female character?). Second tergites without, third and fourth with strong, median discals, second without or with weak median marginals. R_4 closed in margin.

2 (3). 3 *stpl*, but the middle one much smaller. Lateral scutellar setae as widely separated from basal as from apical setae. Rather thickly whitish grey dusted, abdomen conspicuously tesselate ..... *tessellata* sp. n.

3 (2). 2 *stpl*, the middle one absent. Lateral scutellar setae almost twice as close to basal as to apical setae. Rather thinly pale grey dusted, abdomen with rather even thin grey dust at sides, becoming more brown towards median line, and with brassy reflections ..... *aeneiventris* sp. n.

4 (1). 4 strong *post dc*. Preapicals of scutellum at or beyond two-thirds of length of scutellum (a male character?). Second to fourth tergites with conspicuous median discals. Descending frontals always forming a double row or irregular group on upper part of parafacialia.

5 (10). 3 *stpl*, the middle one much smaller.

6 (7). Basal two-thirds or more of femora pale ferruginous. Mesonotum with three brown vittae, the median one distinctly composed of three fused vittae, pollinosity pale grey. Hairs on parafacialia in 1–2 rows. Second tergite with a pair of small irregular discals ..... **plumbella* Villen.

7 (6). Femora wholly fuscous to piceous black. Mesonotum with 4 black vittæ. Hairs on parafacialia in 2–3 rows.

8 (9). Disc of thorax and abdomen rather densely pale grey dusted, the former with four conspicuous well-defined undusted black vittae ; scutellum largely dusted whitish-grey. Second tergite with a pair of strong discals. ♂ : eyes separated by twice width of anterior ocellus ..... *rufipalpis* Curr.

9 (8). Disc of thorax and abdomen scarcely dusted, therefore glossy black, the four thoracic vittae rather broad, coalescing and hardly distinguishable on the dark mesonotum ; scutellum thinly dusted with brown, appearing black. Second tergite with a pair of very small irregular discals. ♂ : eyes separated by width of anterior ocellus ..... *nitidicollis* sp. n.

10 (5). 1+1 *stpl*. Mesonotum with three broad fuscous-brown to black vittae, the median one more or less obviously formed by three fused narrow vittae. Second tergite with strong discals.

11 (12). Basal two-thirds or more of femora pale ferruginous. Hairs on parafacialia in 2–3 rows. Hair of dorsum longer, in male most of the hairs on mesonotum longer than width of third antennal segment, some hairs near margin of scutellum fully as long as scutellum. ♂ : eyes separated by less than twice width of anterior ocellus ..... *erythromera* sp. n.

12 (11). Front femora wholly fuscous-black, hind femora brown. Hairs on parafacialia in a single row. Hairs of dorsum shorter. ♂ : eyes separated by width of ocellar tubercle ..... *uniseriata* sp. n.

MACQUARTIA TESSELLATA sp. n., ♀

Fuscous-black, with rather dense pale-grey dust, paramedian fuscous vittae of mesonotum only reaching level of first *post dc*, outer vittae almost complete, narrow behind suture, from suture almost to scutellar suture a broad undusted glossy median vitta is present, which laterally almost reaches the *post acr*, abdomen in dorsal view with a narrow fuscous median vitta, a dot at base of discal setae, a broadly transverse dark shifting spot at base of each segment and a smaller shifting spot at hind margin of lateral surface ; basal antennal segments dull orange. *Head* rather densely pale-grey dusted with dull reddish interfrontalia ; eyes not very densely (♀) long-haired ; frons at vertex about three-tenths (0·27–0·32) head-width, evenly dilated with almost straight sides to lunula, where it is two-fifths to one-half (0·39–0·5) head-width, frontal triangle small ; interfrontalia slightly broadened to lunula, parafrontalia with (2–)4–5 rather strong inclinate and 2 strong proclinate setae, in addition 2 frontal setae descending on parafacialia almost to level of apex of second antennal segment, ocellars and outer verticals strong, inner verticals very strong, parafacialia more than half, jowls almost twice, as wide as third antennal segment. The latter half as long again as wide, falling short of mouth-margin by almost its own width, arista thickened in less than basal third, only pollinose, longest hairs less than half as long as basal diameter of arista.—*Thorax* with 3 +3 (type) or 3 +2 *acr*, 3 +3 strong *dc*, 0 +3 *ia*, the first *post* one short but quite conspicuous, *pra* hardly stronger ; all three marginal scutellars strong.—*Abdomen* elongate-ovate, spindle-shaped, anterior tergites without median setae, third and fourth with strong median discals, third with strong median and lateral marginals (*i.e.* almost a row), fourth with a row of rather weak marginals and a number of strong setae (lateral discals) on posterior half of dorso-lateral surface.—*Wings* subhyaline with testaceous veins ; base of r_{4+5} with 2–4 setulae on dorsal and ventral surfaces, r_1 distinctly exceeding level of *r–m*, which lies at middle of discal cell, sector of *m* between *m–m* and apical cross-vein shorter than the latter, subequal to *m–m*. Lower calyptra including border greyish-white, fringe golden white—*Legs* fuscous, femora and tibiae thinly grey dusted ; fore tibia with 2 *p* setae and a row of gradually longer *ad* setulae ; mid femur with 2 *a* setae towards middle, 1 *av* at base and 3–4 *pv* setae on basal half, mid tibia with a strong *av* and *ad*, a weaker *ad* somewhat basad, and with 2–3 small *p* setae ; hind femur with about 4 widely spaced strong *av* and 3 *pv* setae, hind tibia with 2 small *av*, an *ad* row of setulae, among which 3 setae are interspersed, and 2 strong *pd* setae, the distal one of them being especially strong.

Length 5·2–5·9 mm., of wings 4·6–5·2 mm.

S. Africa : Van Rhyn's Pass, Cape Province, 11–21. xi. 31 (*Mus. L. Ogilvie*), ♀ type ; Mossel Bay, 20. x. 38 (*R. E. Turner*), 1 ♀ paratype.

The larger measurements and numbers of *acr* refer to the type. In the paratype the head is split, and the measurements for the frons have been corrected to allow for this, but it is impossible to be sure that they have not been over-corrected.

MACQUARTIA AENEIVENTRIS, sp. n., ♀

Fuscous, dusted, rather thinly pale grey, mesonotum with four not very sharply defined undusted vittae and from suture almost to scutellar suture with an undusted median vitta, abdomen thinly dusted pale grey with the posterior third of the segments fuscous black and thinly dusted brown with a conspicuous brassy gloss, which extends further towards base medially ; antennae fuscous. *Head* thinly dusted whitish grey ; eyes moderately densely long-haired ; frons at vertex almost three-tenths (0·28) head-width, gradually dilated with somewhat concave sides to lunula, where it is over a third (0·35) head-width ; frontal triangle small, interfrontalia dull reddish, apparently narrower in anterior half than parafrontalia, the latter with 4 inclinate setae, 2 strong proclinate setae and a not very strong praevertical, 2 further frontal setae descending almost to apical level of second antennal segment, rather close together, rest of head and antenna as in *tessellata*.—*Thorax* with setae as in *tessellata*, only 2 *post acr* present on the right, and only 2 *ia* on the left, side, basal scutellar much weaker than the apical decussate setae and lateral seta closer to it.—*Abdomen* shaped as in *tessellata*, setae of anterior three segments as in that species, fourth with a complete row of strong discals and rather weak marginals, between them another row of moderately strong setae and, on lateral part between these and the discal row 1–2 strong additional lateral discals.—*wings* greyish subhyaline with light-brown veins ; *r–m* basad of middle of discal cell, sector of *m* between apical cross-vein and *m–m* somewhat shorter even than *m–m*, wings and calyptrae otherwise as in *tessellata*.—*Legs* : mid tibia with 4–5 *p* setae, the second and last rather strong, hind femur with 5 widely spaced strong *av* setae, hind tibia with 2–3 *av* and 3 *pd* setae, the two distal ones being strong ; otherwise as in *tessellata*.

Length 4·7 mm., of wing 4·7 mm.

UGANDA : Kanaba Gap, Kigezi Dist., 7500 ft., 19. xi. 34 (*F. W. Edwards*), ♀ type.

The head is somewhat squashed, the lower part of the face being dented. Therefore, the width of the frons and interfrontalia may be somewhat greater in proportion to the head-width than the type seems to indicate.

MACQUARTIA PLUMBELLA Villeneuve

Villeneuve 1942, *Bull. Soc. ent. France* **47** : 53.

Type locality : S. RHODESIA : Salisbury.

MACQUARTIA RUFIPALPIS Curran

Macroprosopa rufipalpis Curran 1927, *Bull. ent. Res.* **17** : 340.

Type locality : S. AFRICA : Klipplaat, Cape Province. 1 ♂ paratype in B.M.

Macroprosopa (genotype *atrata* Fln.) differs from the present species by only 2 *post ia*, a narrowed lower calyptra (as in some European *Macquartia*), etc. Mesnil (1939) places *Macroprosopa* in Dufouriini, but in *M. atrata* the two setae are placed rather close together, so that the missing one must be the anterior *post ia*. It will be difficult, therefore, in Mesnil's classification to exclude *Macroprosopa* from Macquartiini.

MACQUARTIA NITIDICOLLIS, sp. n., ♂

Glossy fuscous-black with piceous femora and piceous-brown tibiae ; dorsal surface thinly greyish brown dusted, this dust more conspicuous only in posterior view, lower part of head, shoulders, notopleura and pleura dusted moderately densely greyish white. *Head* dusted moderately densely whitish, this dust extending over anterior half of parafrontalia along eye margins, but the area of the inclinate setae on parafrontalia and parafacialia rather broadly dusted dark brown ; eyes densely long-haired, contiguous in front of ocellar triangle, where the interfrontalia are obsolete and the parafrontalia linear, on anterior three-fifths of frons the interfrontalia are reddish black and form an elongate triangle, parafrontalia strongly dilated in anterior three-fifths, where 5–6 strong inclinate setae and to their outer side a similar number of inclinate setulose hairs are present, in addition to 3–4 strong inclinate setae descending on parafacialia almost to level of apex of second antennal segment, an inclinate seta to the inner side of this descending row ; ocellars and inner verticals (as estimated from respective pores) rather strong ; parafacialia rather broad, jowls two-fifths as wide as greatest width of eyes [third antennal segment lost in type].—*Thorax* in front of suture with a median vitta and a paired vitta on the line of the *dc*, these vittae very faint, the dust being rather more grey than on the broad dark vittae ; 3+3 strong *acr*, 3+4 strong *dc*, 3 rather strong *post ia*, *pra* not very long but quite conspicuous ; the three marginal scutellars strong, lateral setae slightly nearer to basal than to apical scutellars.—*Abdomen* elongate, fourth segment more strongly narrowed to apex, which is truncate ; dusted evenly and thinly brown, in posterior view the dust appears more greyish brown on anterior and lateral part of each segment ; second segment with a pair of strong median marginals, which are somewhat removed from margin, and a lateral marginal, third segment with a pair of strong median discals (or advanced median marginals?) and on either side 3 marginals, which are broadly separated on median line, fourth with a row of strong discals and marginals, first genital segment in posterior view slightly higher than wide, almost vertical.—*Wings* greyish subhyaline, somewhat infuscated along the veins, which are dark brown ; base of r_{4+5} with 3 setulae, r_1 slightly exceeding level of *r–m*, which lies at, or slightly beyond, middle of discal cell, sector of *m* between *m–m* and apical cross-vein considerably shorter than either, bend with the vestige of an appendage. Calyptrae brown, the border more whitish, especially laterally, fringe pale golden.—*Legs* : fore tibia as in *tessellata* ; mid femur with 5 *pv* setae on basal half, of which 2 are strong, otherwise as in *tessellata*, mid tibia with 3 *ad* setae, which increase in length towards apex, without an *av*, with 1–2 small *pd*, 3 *p* and 1 strong *pv* seta ; hind femur with 3 strong (and 1–2 weak) *pv* and 6 strong *av* setae, hind tibia with 4 *pd* setae, the second and last of which are strong, an *ad* row, which contains 2 strong setae, and 2–3 *av* setae.

Length 7·8 mm., of wings 6·7 mm.

KENYA : Jinja, x. 30 (*V. G. L. van Someren*), ♂ type.

MACQUARTIA ERYTHROMERA, sp. n., ♂

Fuscous-black with basal two-thirds or more of femora pale ferruginous

(in the Congo specimen fore femora with only basal third, mid femora with basal half, pale) ; dorsal surface dusted rather densely whitish grey, the dark pattern dusted thinly fuscous brown and rather shiny. *Head* dusted moderately densely whitish grey, clypeus and bare part of jowls rufous-brown ; interfrontalia dull fuscous-brown ; eyes densely long-haired, contiguous or (Transvaal specimen) subcontiguous, separated by about width or (Transvaal specimen) almost twice width of anterior ocellus, interfrontalia obsolete or very narrow respectively in upper third, dilated anteriorly into an elongate triangle, parafrontalia linear in upper half to third, strongly dilated to lunula, anterior three-fifths with 4–6 rather strong inclinate setae and some erect hairs, in addition with 3–6 descending setae on upper part of parafacialia where they do not or hardly exceed apical level of second antennal segment and where they are arranged in a partly double or treble row ; ocellars strong, inner verticals weak but rather distinct ; parafacialia slightly broader at middle than, and jowls more than twice as broad as, third antennal segment. The latter almost twice as long as wide and falling short of mouth-margin by its own width ; arista as in *M. tessellata*.—*Thorax* with the median vitta broadening slowly from neck to scutellum, the linear paramedian vittae distinct near neck or up to suture, dusted somewhat thinly whitish, outer vittae broad and complete, scutellum with some fuscous dust at base and on disc:, 3 +3 strong *acr*, 3 +4 strong *dc*, 3 rather strong *post ia*, the first subequal to the *pra* ; marginal scutellars as in *nitidicollis*.—*Abdomen* shaped as in that species, moderately densely dusted greyish-white, in lateral view the reflections divided on median line, in posterior view median part of intermediate segments with a large suffused brown-dusted spot, the apex of which is directed to front margin of segment, first segment with some brown dust on median line and along part of hind margin, fourth without distinct brown dust but with a pair of oblong dark shifting spots extending from base to about middle ; all segments with rather strong lateral discals and marginals, second and third with a pair of strong median discals, second with a pair of strong median marginals, third and fourth with a row of strong discals and marginals (the latter double in the Transvaal specimen).—*Wings* greyish subhyaline, with a brown tinge, conspicuous in the type, slight in the Transvaal specimen, with dark-brown veins ; base of r_{4+5} with 3–5 setulae, r_1 conspicuously exceeding level of *r–m*, which lies near middle of discal cell, sector of *m* between *m–m* and apical cross vein much, or (in Transvaal specimen) somewhat shorter than either, bend with at least the vestige of an appendage. Calyptrae greyish subopaque, somewhat smoky, especially in type, border yellowish grey, fringe whitish.—*Legs* : fore tibia with 3 *p* setae and a row of small *ad* setae ; mid femur with an *av* near basal sixth and 6–8 *pv* setae on basal half or three-fifths, the row being completed on apical part by a fringe of longer setulose hairs, mid tibia with a strong *pv*, 2 *ad* and 4–7 *pd* setae ; hind femur with 3–5 strong *pv* setae on about basal half and a complete row of somewhat unequal *av* setae, the first and 1–2 other setae being weak and the distal 1–2 much shorter, hind tibia with 2 *av* setae, an *ad* row which contains 1 strong seta beyond middle and 2–3 moderately strong ones, and 4 *pd* setae the distal one of which, at three-fifths of length of tibia, is much longer.

Length 7·5–8·5 mm., of wings 7·3–8·2 mm.

S. Abyssinia : [" Higo Samula "]* 30. x. 11 (*R. J. Stordy*), ♂ type.

Belgian Congo : Tshibinda, Kivu, xi. 27 (*Ch. Seydel*), 1 ♂ paratype (in Mus. Tervuren). Transvaal : Johannesburg, i. 44 (?), ex larva of *Monardita cuprea* Baly† (*N. F. Paterson*), 1 ♂ paratype.

According to Villeneuve's description *M. plumbella* must be very similar to this species. However, apart from the presence of the intermediate *stpl* and the small discals of the second tergite, *plumbella* differs by *m–m* being equidistant from *r–m* and bend, and the costal spine being of medium size.

MACQUARTIA UNISERIATA, sp. n. ♂

Fuscous-black with brown hind femora and tibiae (middle legs missing in type) ; dorsal surface moderately densely dusted greyish-white, with a fuscous thinly brown-dusted pattern, which shows brassy reflections. *Head* moderately densely whitish dusted, bare part of jowls rufous-brown, interfrontalia brown in front, fuscous brown behind ; eyes densely long-haired, separated by three times width of anterior ocellus, interfrontalia at narrowest part twice as wide as a parafrontale, gradually dilated into an elongate triangle in front, where they are slightly narrower than a parafrontale, the latter on anterior two-thirds (from hind end of lunula) with six pairs of inclinate setae which become gradually weaker, upper part of parafacialia with a group of 4–5 descending frontal setae in two irregular rows which reach level of middle of second antennal segment, ocellars strong, inner verticals weak but distinct ; parafacialia at middle somewhat wider than, jowls about thrice as wide as, third antennal segment. The latter half as long again as wide, falling short of mouth-margin by its own width ; arista thickened in basal fourth, pollinose, longest hairs less than half as long as its basal diameter.—*Thorax* with 3+3 *acr*, 3+4 strong *dc*, 0+3 *ia*, the first of them the shortest but still much stronger than the *pra* ; the 3 marginal scutellars strong.—*Abdomen* oblong-ovate, first segment without median marginals, second and third with a pair of median discals, which are only moderately strong and situated at basal fourth on the second, a pair of median, and two pairs of lateral, marginals on second segment strong, third with a row of strong marginals consisting of 4–5 pairs, the median ones more widely separated, fourth segment with a row of moderately strong marginals and with two rows of strong discals, the median pair of the anterior row less widely separated than that of the second row.—*Wings* greyish subhyaline, somewhat smoky along front margin and along the veins, the latter brown ; base of r_{4+5} with 3–4 setulae on dorsal and ventral surfaces ; r_1 exceeding level of *r–m* which lies towards middle of discal cell, sector of *m* between *m–m* and apical cross-vein slightly more than half as long as the latter and much shorter than *m–m* ; bend with the vestige of a genuine appendage. Lower calyptrae, including border, greyish-white,

* Two different localities, about 100 miles apart, see Scott apud Emden 1941, *Ann. Mag. nat. Hist.* (11) **8** : 224 note.

† This chrysomelid larva was described as *Plagiodera cuprea* by N. F. Paterson, but it is obvious from the description that it is not closely related to *Plagiodera* but more closely to *Chrysomela* (=*Chrysolina*). After studying the adult Dr. J. Bechyne has been good enough to inform me that *cuprea* is a subspecies of *Monardita opulenta* Reiche.

somewhat smoky at base of scutellum, fringe golden-white.—*Legs* : fore tibia with 3 *p* and 4 subequal *ad* setae, claws and pulvilli of male long ; hind femur with a complete row of long and strong *av* (about 8) and *pv* (about 5) setae, hind tibia with 2 *av*, about 4 *ad* and 4 *pd* setae, much the strongest *ad* and *pd* lying at three-fifths of its length.

Length 6·8 mm., of wings 7·0 mm.

Belgian Congo : Gîte de Nkuli, Kusanda, 24. iii. 36 (*L. Lippans*), ♂ type (Mus. Congo Belg. Tervuren).

KINANGOPANA, gen. n.

Rather slender, black with some pale dust. *Head* with somewhat swollen occiput and moderately prominent anterior part of frons, frontal setae somewhat descending on parafacialia, hindmost seta inclinate and somewhat reclinate in male, developed as a praevertical (bent outward and backward) in female ; ocellars strongly diverging ; occiput with one or more rows of black setulae behind the postocular row and with whitish hair on disc ; jowls not very broad, vibrissal angles and mouth-margin not produced, only a few setulae ascending on facial ridges above vibrissae ; first antennal segment somewhat projecting upward and forward, arista of normal length, with conspicuous hairs, palpi well developed, of normal shape.—*Thorax* with prosternum bare, hardly dilated and bare propleural depression ; only 1 *ph*, *pra* rather short, 3 *post ia*, *prst ia* absent ; 3 +1 *stpl* ; scutellum with 3 pairs of marginals, without discals and preapicals, subbasal marginals rather weak, subapical ones very strong and diverging, somewhat nearer to apex than to base, apical ones moderately strong, strongly decussate.—*Abdomen* elongate, slightly compressed laterally, especially towards apex, dorsal basal excavation reaching hind margin of first segment ; genitalia retracted.—*Wings* with bare veins except for *c* and the node at base of r_{4+5} ; R_5 narrowly open, bend of *m* obtuse, apical cross-vein somewhat concave outwardly. Lower calyptra bare on dorsal surface, broadened to apex, its inner margin following side margin of scutellum. *Legs* : hind coxa bare on *p* surface, hind tibia with a *pv* apical seta.

Type : *K. edwardsi*, sp. n.

KINANGOPANA EDWARDSI, sp. n., ♂ ♀

Fuscous-black with whitish and fuscous-brown dust, mesonotum with three broad white-dusted vittae, the median one disappearing in brownish dust towards suture and, laterally, affected by a linear brown-dusted paramedian vitta, the outer ones reaching from shoulders to last *ia*, though fainter behind ; abdomen with about basal fourth of second to fourth segments dusted greyish-white, the dust somewhat thinner towards median line, but no distinct darker median vitta present.—*Head* with dense greyish-white dust on lower part of occiput, jowls, face and anterior part of parafrontalia (in female all of parafrontalia), some brown dust present at vibrissal angles, on the dark upper part of the occiput and, in male, on the greater posterior part of the parafrontalia ; eyes practically bare ; frons at vertex one-quarter (0·24–0·26) head-width (♂ ♀), with almost straight sides, in male slightly dilated to lunula where it is one-third (0·33) head-width, in female moderately dilated, so as

to reach two-fifths (0·39–0·41) head-width at lunula, frontal triangle somewhat dusted brown, not reaching middle, interfrontalia dark velvety brown to blackish brown, wider than a parafrontale, except at anterior extremity, parafrontalia with 6–7 strong inclinate setae, and, in male, an additional strong inclinate, in female a strong praevertical (bent outward and backward), female besides with 2 strong proclinate setae, 2 of the inclinate setae developed as descending frontal setae ; ocellars and outer verticals moderately strong (♂) or ocellars weak to indistinct and outer verticals rather strong (♀), inner verticals very strong ; parafacialia strongly narrowed from lunula downward, in male less, in female more, than half as wide as third antennal segment, jowls in male less wide, in female markedly wider, than that segment, which in male is very large and almost reaches mouth-margin ; arista plumose on basal half, becoming gradually short-plumose, longest hairs in male 1/3–1/2 as long, in female more than half as long, as width of third antennal segment.—*Thorax* with 2 +1 *acr* and 2 +3 strong *dc* ; 0 +3 *ia*, the first one weak, somewhat longer than, or equal to, *pra* ; longer *stpl* rather weak.—*Abdomen* elongate, spindle-shaped, first segments without distinct median, but with 1–2 strong lateral, marginals, second and third segments with a pair of very strong median discals somewhat interior to middle, second with a pair of very strong median marginals and 1–2 strong (♂) or moderately strong (♀) lateral marginals, third segment with a row of very strong marginals, fourth with one of strong discals and one of strong marginals, each of these rows usually formed by 3 pairs of setae.—*Wings* strongly infuscated, less so along hind margin, veins brown ; base of r_{4+5} with 2–4 setulae on dorsal and 1(–2) on ventral surface; r_1 exceeding level of *r–m*, which lies between basal third and two-fifths of discal cell, sector of *m* between *m–m* and apical cross-vein almost as long as the latter and at least as long as *m–m*. Lower calyptra somewhat smoky with the inner margin intensely browned along scutellum. Halteres fuscous.—*Legs* piceous, moderately slender ; fore tibia with a *p* seta beyond middle and some small *ad* setae ; claws and pulvilli of male much longer than fifth tarsal segment, distal segments of fore tarsus from the second or third onwards markedly broadened in female ; mid femur with a strong *a* seta towards middle and 3–4 *pv* setae on basal half, mid tibia with an *av*, 1–2 *ad* and 2 *pd* setae ; hind femur with about 2 weak *av* in basal and 2 strong *av* on apical half and 3–4 strong *pv* setae, hind tibia with 2 *av* (the proximal one rather small), 3 *ad* and 2–3 *pd* setae.

Length 5·6–7·2 mm., of wings 5·1–5·9 mm.

KENYA : Mt. Kinangop, Aberdare Mts., 8,000 ft., Cedar Forest, x. 34 (*F. W. Edwards*), ♂ type, 2 ♀ paratypes ; 10,000 ft., 26. x. 34, 1 ♂.

The male captured at a height of 10,000 ft. has short claws and pulvilli like the female, and its frons is very slightly more dilated anteriorly, where it reaches 0·36 head-width. It may belong to a different species but may also be an abnormal specimen of the present form.

2. WAGNERIINI

The strong proclinate setae of the parafacialia in this tribe are very suggestive of those of Voriini, and so are the setae of the scutellum, the usually

dichoptic head of the male, and the appendage at the bend of *m*. On the other hand the occurrence of setulae on the prosternum of some Voriini and of a *pv* spur on the hind tibia of some Wagneriini as well as some other characters (see van Emden 1954 : 55) tend to separate these tribes in different subfamilies, and this course has been followed here in order to keep exceptions in the classification to a minimum. The tribe contains few genera, and only *Wagneria* has been found in the Ethiopian region. One of the species, however, has in the male sex a narrower frons and no proclinate orbitals, much like *Kirbya*, but the long third antennal segment, slender body and pale hairs on the central part of the occiput are characters of *Wagneria*, to which the female can only be traced.

WAGNERIA Robineau-Desvoidy 1830

The genus appears to parasitize only Agrotidae (=Noctuidae) in the larval stage, although there is a summary European record from a pterophorid and a similar record, based on a collection label, from an arctiid.

Phorichaeta differs from *Wagneria* by the absence or weak development of the basal scutellar setae and the discals of the intermediate segments. Somewhat transitional specimens are frequent, and there is little advantage in preserving *Phorichaeta* as a separate genus, although it represents undoubtedly a natural group.

1 (4). Basal marginal setae of scutellum absent or smaller than discal setae, scutellum therefore with only 2 pairs of conspicuous marginals ; only 1 pair of conspicuous erect discals, which lies near basal fourth. Intermediate tergites without discals (or only with an odd small one). Lower prostigmal well developed and curved downward. Second basal cell fused with discal cell, the cross-vein being obsolete (Sbg. *Phorichaeta* Reich). Eyes bare. Palpi orange. Occipital dilation absent but lower part of anterolateral margin of the setulose occipital area with 1–2 long and rather strong setae. Scutellum about as long as wide. r_1 bare ; stalk of R_s half as long as apical cross vein or longer ; anterior part of wing, at least up to r_{4+5}, strongly infuscated. Halteres fuscous. Abdomen almost undusted, glossy black, mesonotum with a pair of rather broad unconspicuous whitish-dusted vittae. Jowls more than half as wide as greatest diameter of eye.

2 (3). Third antennal segment up to thrice as long as wide and as second, not reaching mouth margin, its dorsal edge convex ; facial profile straight except at vibrissal angle (=*nigrans* Meig.).... *carbonaria* **Panz.**

3 (2). Third antennal segment fully four times as long as wide and as second segment, reaching mouth margin, its dorsal edge concave; facial profile sinuous, broadly convex above and broadly concave below, face rather strongly excavated..... *caviceps* **sp. n.**

4 (1). Basal marginal setae of scutellum well developed, subequal to the apical, scutellum therefore with three pairs of conspicuous marginal setae. At least third tergite with strong discals (but see *propleuralis*), normally both second and third with distinct discals. Discal cell separated from second basal cell by a distinct, though sometimes not quite complete, vein. (Sbg. *Wagneria* **s. str.**)

5 (16). Eyes practically bare. Lower prostigmal distinct, somewhat longer and stronger than the adjacent setulae and curved downward (not known of *amicula*). ♂ : interfrontalia dusted grey and not defined from parafrontalia.

6 (13). Wings without suffusions on *m–m* and apical cross-vein. r_1 bare (except for 1–2 setulae on intermediate part in *natalica*), dorsal surface of r_{4+5} setulose to *r–m* or hardly beyond.

7 (8). Wings uniformly brownish. Palpi black. Hair of occiput all pale (except presumably for occipital (postocular) row). Third antennal segment of male four times as long as second. Basal dorsal excavation of abdomen reaching hind margin of first tergite ..... * *amicula* Mesnil.

8 (7). Wings uniformly whitish, subhyaline. Palpi brown.

9 (10). r_1 bare. Third antennal segment of male very long and thick, longer than frons, about eight times as long as second segment, the edge with a hump-like dilation at base.

11 (12). Interfrontalia of subeven width, or slightly widened behind, in male twice as wide at middle as a parafrontale. Basal dorsal excavation of abdomen reaching hind margin of first tergite.

♂ : ventral surface of abdomen with normal short decumbent setulose hairs ; dorsal (=anterior) apex of third antennal segment conspicuously produced (much as in *Glossina*)..... *glossinicornis* sp. n

12 (11). Interfrontalia very broad, gradually narrowed behind, in male 3–4 times as wide at middle as a parafrontale. Basal dorsal excavation of abdomen not reaching hind margin of first tergite.

♂ : ventral surface of abdomen with dense long erect hairs (half as long as vertical diameter of abdomen), the tips of which are wavy ; dorsal (anterior) apex of third antennal segment broadly rounded, not produced..... *laniventris* sp. n.

10 (9). r_1 with 1–2 setulae on intermediate part. Third antennal segment of male about as long as frons, about four times as long as second segment, the edge only slightly convex at base. Basal dorsal excavation of abdomen reaching hind margin of first tergite. Interfrontalia of subeven width, 3–4 times as wide at middle as a parafrontale.

♂ : ventral surface of abdomen with dense long erect stiff setulae (about a third as long as vertical diameter of abdomen), the tips of which are slightly wavy ; dorsal apex of third antennal segment rounded, not produced..... *natalica* sp. n.

13 (6). Apical cross-vein, *m–m* and the section of *m* between them suffused and fuscous, much darker than basal half of fourth and fifth veins, thus forming a dark Z, *r–m* not suffused ; fore margin of wing, especially R_1, also strongly suffused. Basal dorsal excavation of abdomen reaching hind margin of first tergite.

14 (15). r_1 bare, except sometimes for 1–2 setulae near apex ; dorsal surface of r_{4+5} setulose to *r–m* or at the most almost to level of *m–m*, costal suffusion extending over *Sc* and R_1, and the part of R_5 adjacent to r_{4+5} but not distinctly clouding R_5. Palpi brown ..... *z-fuscum* sp. n.

15 (14). Intermediate third of r_1 setulose ; dorsal surface of r_{4+5} setulose to beyond level of *m–m* ; apical section of r_1 and costa beyond apex of r_1 strongly suffused, the suffusion dilated to beyond r_{4+5} on apical two-fifths of wing. Palpi pale reddish-yellow. (♂ unknown.) ..... *nubilipennis* sp. n.

16 (5). Eyes conspicuously hairy. Lower prostigmal not or hardly differentiated from the adjacent setulose hairs.

17 (18). Propleural depression setulose. Basicosta fuscous-brown. Third abdominal segment with only one pair of median setae, which are strong and lie somewhat behind middle, being apparently shifted marginals rather than discals. Wings distinctly browned, cross-veins and *Sc* slightly suffused; r_1 with a few setulae near apex ..... *propleuralis* sp. n.

18 (17). Propleural depression bare. Basicosta orange to pale yellow. Third abdominal segment with median discals and marginals.

19 (26). r_1 bare on dorsal surface of intermediate section but occasionally with some odd setulae near apex.

20 (21). Stalk of R_5 shorter than *r–m*; transverse veins not markedly suffused. Basal part of tergites conspicuously dusted whitish-grey, the bands fading out between basal third and middle.

♂: frons less than three-tenths head-width, with a praevertical but without proclinate orbital setae; dorsal (anterior) edge of third antennal segment broadly rounded in profile. Fore margin of wing strongly infuscated from *Sc* to beyond apex of r_{2+3} ..... *kirbyiformis* sp. n.

21 (20). Stalk of R_5 about twice length of *r–m*. Fore margin of wing not or hardly darkened, except *Sc*.

♂: dichoptic, with proclinate orbital setae.

22 (23). Abdomen and thorax appearing almost evenly bluish-grey with somewhat brassy disc, without distinct bands and vittae, the not very dense whitish-grey dust being almost evenly distributed. Wings with four very conspicuous spots, in *Sc*, on *r–m*, apical cross-vein and *m–m* ..... *guttipennis* sp. n.

23 (22). Abdomen with distinct densely pale-dusted basal bands and thorax with pale-dusted and black undusted vittae. Tibiae fuscous to piceous, seldom piceous-red. Stem of R_5 about half as long as apical cross-vein.*

24 (25). Wings with four conspicuous spots in *Sc*, on *r–m*, apical cross-vein and *m–m* ..... *fratella* Villen.

25 (24). Wings with the apical part of r_1 and *r–m*, and the apical cross-vein fuscous but not or only very slightly suffused ..... *decolor* sp. n.

26 (19). r_1 with some conspicuous setulae on dorsal surface at least between levels of *h* and costal spine (sometimes with only 1–2*).

27 (34). Fifth vein bare.

28 (29). 2 *post acr*, the intermediate one missing. Scutellum between the second pair of discal setae and the apicals with only an unpaired erect seta just above tip. Cross-veins not or very indistinctly suffused ..... *salti* sp. n.

29 (28). 3 *post acr*, individually sometimes only 2, but then the anterior one missing.

30 (33). Setulae on dorsal surface of r_{4+5} not or only slightly exceeding level of *r–m*.

31 (32). *r–m*, *m–m* and apical cross-vein conspicuously suffused. Bend of *m* sharp, apical cross-vein strongly concave. ♂: frons with strong proclinate orbitals, as wide at vertex as an eye ..... *canina* Mesnil

* In *W. rufitibia* Villen. the number of setulae on r_1 is rather variable, and a specimen without these setulae has been named var. *nudinerva* by Mesnil. This form will probably be traced to this paragraph and may be expected to differ from *fratella* and *decolor* by the shorter stalk of R_5 " shorter than *Sc* " and only about a quarter length of apical cross-vein.

32 (31). *r–m*, *m–m* and apical cross-vein not or very indistinctly suffused Bend of *m* obtuse, apical cross-vein only slightly concave. ♂ : frons with rather weak proclinate orbitals, not quite as wide at vertex as an eye ..... *pallidipennis* sp. n.

33 (30). Setulae on dorsal surface of r_{4+5} extending to about level of *m–m*. Transverse veins faintly suffused, bend of *m* not very sharp, apical cross-vein moderately concave. Tibiae pale ferruginous to dull rufous-brown. Lower calyptra somewhat smoky towards margin, seldom wholly smoky-brown, but the border always white or yellowish white ..... *rufitibia* Villen.

34 (27). Fifth vein with some setulae on dorsal surface. Transverse veins with strong fuscous suffusions, base of wings yellowish orange, *Sc* not darker than R_1

35 (36). 1+1 *acr.* Setae of r_1 not extending to apical part ..... *vidua* Mesnil.

36 (35). 3+3 *acr.* Apical part of r_1 setuloso ..... *vidua* Mesnil var.?

WAGNERIA CARBONARIA Panzer

Musca carbonaria Panzer 1798, Fauna germ. **54** : p. 15.

Dexia nigrans Meigen 1826, Syst. Beschr. **5** : p. 40.

Rhinophora nigrans Meigen 1838, Syst. Beschr. **7** : p. 210 ; Villeneuve 1930, *Bull. Ann. Soc. ent. Belg.* **70** : p. 44.

Type locality : GERMANY. Widely distributed in Europe, in the North to N. Wales, Norfolk and Finland. MEDITERRANEAN. N. INDIA. Widely distributed in the Ethiopian region; in B.M. from : KENYA : Naivasha, vii. 37 and ix. 39 (*H. J. A. Turner*) ; Nukuru, 16. vi. 25, ex Cutworm (*H. Wilkinson*). BELGIAN CONGO : Tshibinda, 21–27. viii. 31 (*J. Ogilvie*). NYASALAND : Zomba, 2500 ft., hatched 19. xii. 27 ex *Prodenia litura* larva (*C. Smee*). S. RHODESIA : Mangwendi, hatched 20. xi. 12 ex Marandella cutworm (*A. Cuthbertson*). S. AFRICA : Barberton, Transvaal, ix. 30, ex larva of *Euxoa segetum* (*J. S. Taylor*) ; Ingogo, Natal, iii. 32 (*Miss A. Mackie*) ; Van Reenen, Drakenberg, Natal, xi. 26 (*R. E. Turner*) ; Weenen, Natal, ix–x. 28 (*H. P. Thomasset*) ; Ficksburg, Orange Free State, ii–iii. 32 (*J. Ogilvie*) ; North Bank Halt, Natal, Nowals Pont, 14. and 16. iv. 34 (*J. Ogilvie*) ; Mossel Bay, Cape Province, ii. 22, viii. 32, xii. 34, 20–29. x. 38, 30. xi., 14–17. xii. 38 (*R. E. Turner*) ; Queenstown, 3500 ft., Cape Province, 16. i–10. ii. 23 (*R. E. Turner*) ; Nieuwoudtville, Cape Province, 18–22. xi. 31 (*Miss A. Mackie*) ; Van Rhyn's Pass, Cape Province, 11–21. xi. 31 (*Miss A. Mackie*) ; Huguenots, Cape Province ii. 32 (*Miss A. Mackie*) ; Calvinia, nr. Ondtshoom, Cape Province, xi. 31 (*Miss A. Mackie*, and Bloukrans, nr. Calvinia, x. 31, Cape Province (*Mrs. L. Ogilvie*) ; Boshof, Cape Province, 12–14. x. 26 (*R. I. Nel*) ; Matatiele, 6. and 15. xi. 54 (*C. H. Andrewes*). S.W. AFRICA (*K. Jordan*).

Seen from : SUDAN : Killing, Jebel Murra, W. Darfur, 7000 ft., 7. iv. 32 (*Miss M. Steele*). KENYA : Lambwa, 1. x. 18 (*T. J. Anderson*). NATAL : Durban, 11. x. 19 (*C. N. Barker*). CAPE PROVINCE: Lady Grey, 9. vii. 26 (*R. I. Nel*).

WAGNERIA CAVICEPS, sp. n., ♂

Piceous-brown to piceous-black with pale-orange palpi, rufous-brown proboscis, interfrontalia and soft part of jowls, and with dull-brown antennae, the edges of the proximal segments translucent ferruginous. *Head* almost

twice as high as long, frons almost horizontal, forming an angle of about 90° with upper part of occiput ; anterior extremity of frons strongly projecting, facial profile sinuous, the upper part broadly convex and only slightly projecting beyond anterior extremity of frons, the lower part broadly concave, jowls almost square ; clypeus strongly concave ; eyes virtually bare, separated at vertex by 3/8 head-width, front evenly strongly dilated with slightly concave sides to lunula, where it is half as wide as head, being as long as wide anteriorly ; interfrontalia about as wide at middle as a parafrontale, the latter with four strong inclinate setae, a small praevertical slightly outward and behind the hindmost of them, and with 2 strong proclinate orbitals ; inner vertical very strong, outer vertical moderately strong, ocellars moderately strong ; parafacialia markedly narrowed downward, much narrower than in *carbonaria*, at middle only about one-fifth width of eye, with 5–6 strong downward-curved setae ; antennae much longer and more slender than in *carbonaria*, third segment with concave dorsal (=anterior) margin ; arista practically bare (pollinose), slightly shorter than third antennal segment, evenly tapering from base to tip.—*Thorax* with slight bluish reflections, otherwise not differing from that of *carbonaria*, though somewhat less stout.—*Abdomen*, *wings* and *legs* as in *carbonaria*.

Length 4·4 mm., of wings 3·3 mm.

S. Rhodesia : Salisbury, 9. xii. 27, from cutworms *Euxoa segetum* (*J. Isgaer Roberts*), ♂ type, 1 paratype without abdomen, 1 fragment.

The head of the paratype is somewhat deformed but shows the same features as that of the type. The specimen is therefore believed to belong to the same sex, whilst the antennae and head of the female are expected to be very similar to—if not identical with—those of *carbonaria*. Apart from the great differences in the structure of head and antennae and the apparently more slender superior forceps the above males are hardly distinguishable from *carbonaria*, and if the latter were not distributed over the whole of S. Africa including S. Rhodesia I would consider *caviceps* only as a subspecies of *carbonaria*.

**WAGNERIA AMICULA* Mesnil

Mesnil 1950 *Bull. Inst. R. Sci. nat. Belg.* **26** (3) : 1.

Type : Belgian Congo : Escarpment de Kabasha, 1500 m.

I have seen no specimen which fits Mesnil's description.

WAGNERIA GLOSSINICORNIS, sp. n., ♂ ♀

Black with moderately dense greyish-white dust ; mesonotum with three broad undusted black vittae, the median one extending from neck almost to the *prsc*, the outer ones from the strongest postalar to the suture and continued anteriorly by a *prst* spot from *prst* to *ph* ; scutellum in posterior view thinly dusted brownish grey ; abdominal segments 2–4 with a basal band of white dust, which quickly becomes thinner and more brownish grey, petering out at middle of intermediate segments and at basal third of fourth segment. Palpi brown ; antenna fuscous, joint between second and third antennal segments dull reddish. Legs piceous black.—*Head* (Fig. 2) somewhat more

densely dusted including interfrontalia ; parafrontalia with a shifting black spot formed by the coalescing dark dots at the base of the setae ; frons fully two-fifths (0·42) head-width and almost one-third wider at vertex than long, gradually more strongly dilated to lunula where it is well over one-half (almost 0·55) head-width, interfrontalia hardly narrowed from lunula to middle where they are twice as wide as a parafrontale, the latter gradually dilated forward, with only 3 inclinate setae, the hindmost of which is more reclinate than inclinate, 1 praevertical seta and 3 proclinate orbitals, the strongest of which is anterior to the hindmost inclinate, inner verticals strong, outer verticals weak, ocellars moderately strong ; parafacialia with a descending (fourth) inclinate seta, a regular row of 9 strong down-curved setae, and further outward a row of short down-curved setulae, at middle less than half as wide, jowls half as wide again, as third antennal segment. The latter very long and swollen, base and apex conspicuously produced, the edge concave between them, basal segments very short, inserted at level of upper margin of eye ; arista bare (but dusted), its basal segments short, the third curved at base and thickened to beyond middle.—*Thorax* with 2 +3 *acr*, 3 +3 *dc*, 0 +3 *ia*, a small but distinct *pra*, etc. ; 3 *stpl* arranged in a small equilateral triangle, the lower one smaller ; scutellum with 2 pairs of erect discals on basal half and an unpaired similar seta just above apical declivity.—*Abdomen* slender, spindle-

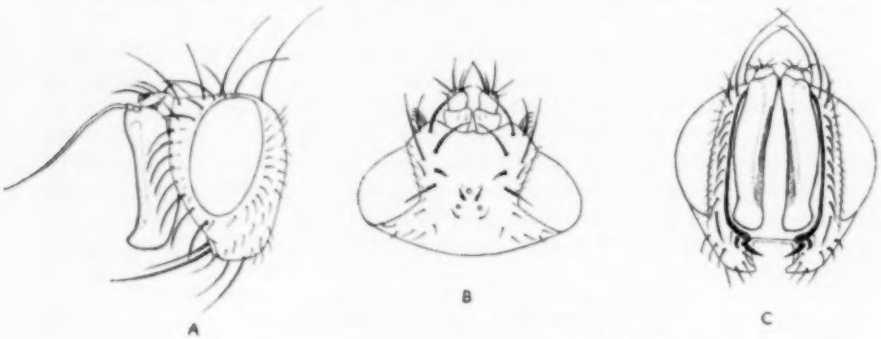

Fig. 2.—*Wagneria glossinicornis* sp. n. A. head in profile ; B, head, dorsal view ; C, head, anterior view.

shaped; first segment without median marginals, second and third with rather weak median and lateral discals, and second with strong median and lateral marginals, on the third these form a complete row with the paramedians, and one lateral pair especially strong and placed somewhat further forward, fourth segment with the setae arranged in about three rows and decreasing in thickness and length from base to apex.—*Wings* whitish subhyaline with testaceous and brown veins, costal spine strong, r_1 bare, r_{4+5} setulose dorsally to *r–m*, which lies at middle of discal cell and is level with the apex of r_1 ; *m–m* straight and hardly oblique, about equidistant from *r–m* and apical cross-vein ; the latter moderately oblique and outwardly concave behind, so that it joins *m* at a right and r_{4+5} at a sharp angle, about twice as long as stem of R_5. Calyptrae

whitish, opaque. Halteres strongly infuscated.—*Legs* : fore tibia with a row of alternating short and longer *ad*, 2 *pd* and 1 *pv* setae ; mid femur with 3 *av* and 3 *pv* setae on basal half, mid tibia with a strong *av*, 3 successively stronger *ad* setae and beyond them a smaller one, and with 3 small *pd* and 1 *p* seta ; hind femur with a row of 5–6 *av* setae and on basal half 3 *pv*, hind tibia with 3 small, successively somewhat longer *av* setae, a row of alternating short and strong *ad* and 3–4 *pd* setae.

Length 5·5 mm., of wings 4·2 mm.

KENYA : Chyulu Hills, 6000 ft., vii. 38 (*Coryndon Mus. Exped.*) ♂ type : in B.M.

A somewhat smaller female (length 4·5 mm., of wings 3·8 mm.) with antennae of normal-size and shape and a correspondingly different head from Naivasha, vii. 37 (*H. J. A. Turner*) in the B.M. will be traced to this species in the key and is probably conspecific. The interfrontalia are less broad and hardly dusted, the parafrontalia without coalescing spots, the vertex not quite two-fifths (0·38) head-width, the sides of the frons straight and its anterior end less than one-half (0·46) head-width ; parafacialia with only 6 down-curved setae ; arista straight and tapering from basal third : abdomen less elongate and marginal row of third segment subinterrupted, only the paramedian setae and one lateral being strong ; *p* surfaces of fore tibia with only 2 setae.

WAGNERIA LANIVENTRIS, sp. n., ♂

Extremely similar to *W. glossinicornis*, from which it differs by hardly narrower frons (0·40 times head-width at vertex and 0·50 at lunula) with almost straight sides but much narrower evenly dusted parafrontalia, the strongest proclinate orbital lying between the hindmost inclinate seta and the praevertical, not produced apex of the third antennal segment, smaller, less conspicuous, *prst* spot of the outer thoracic vittae, more extended white dust on lateral surfaces, and more than twice as long erect dense hair with wavy tips on ventral surfaces of abdominal segments, shorter basal dorsal excavation of the abdomen, dull reddish yellow halteres, the *ad* setae of the fore tibia of subequal length except for a stronger one at middle, the *pv* absent (mid tibia missing in type), hind tibia on *av* surface with only 2, on *pd* surface with 5 setae.

Length 7·2 mm., of wings 4·7 mm.

KENYA : Ngong, v. 36 (*Miss M. Steele*), ♂ type.

The one preserved middle femur of the type has only two setae on the *av* surface, and the apex of the scutellum in addition to the unpaired straight setae bears another somewhat weaker seta slightly more basad. The spicules of the costa and the costal spine are somewhat less developed than in *glossinicornis*, but the difference may be expected to lie well within the limits of fluctuating variation. The most important character for separating *laniventris* from *glossinicornis* is undoubtedly the entirely different vestiture of the venter.

WAGNERIA NATALICA sp. n., ♂

Also closely related and similar to *glossinicornis* and especially *laniventris*, but the antennae and head of the male of almost normal shape ; frons one-

third head-width at vertex, evenly dilated with straight sides to lunula where it is almost one-half (0·46) head-width, interfrontalia hardly broadened anteriorly, about 3 times as wide at middle as a parafrontale ; the latter thinly dusted and blackish on posterior half when viewed perpendicularly, strongest proclinate orbital level with the hindmost inclinate seta ; parafacialia with 7–8 down-curved setae, third segment of arista only very slightly bent downward at base but markedly upcurved at second fifth. Median vitta of mesonotum tapering behind but reaching base of scutellum, *prst* spot of outer vittae not reaching level of *ph* in front and *prst* behind, inner part of outer vittae somewhat disintegrated behind suture by 1–2 narrow longitudinal streaks of pale dust ; chaetotaxy of mesonotum and scutellum as in *glossinicornis*. White dust of abdominal segments petering out behind middle of lateral surface on intermediate segments, but at basal fourth or fifth on fourth segment and on dorsal surface of all segments, marginal row of third segment subinterrupted, the seta between the median and lateral marginals rather weak and decumbent. Spicules on costa rather short, costal spine rather long, r_1 with a few setulae beyond *h*, setulae on r_{4+5} slightly exceeding *r–m*, the latter somewhat basad of middle of discal cell and distinctly exceeded by tip of r_1 ; halteres dull reddish yellow. The 4 *ad* and the 2–3 *pd* of the fore tibia evenly increasing in length towards apex, *pv* seta absent ; mid femur with 2 *av* and 3 *pv* setae on apical half, mid tibia with 3–4 *ad* setae, of which the one at middle is the strongest and the one beyond middle the weakest, a strong *av* and 2 small *p* setae (hind legs missing in type).

Length 5.6 mm., of wing 4.3 mm.

NATAL : Winzinto River, 22. x. 41 (*W. Marriot*), ♂ type (sent in by Department of Research, S. Rhodesia).

It appears quite possible that *glossinicornis*, *laniventris* and *natalica* will prove to be subspecies of the same species when more material from further localities is studied.

WAGNERIA Z-FUSCUM, sp. n., ♀

Coloration, pollinosity and undusted pattern as in *W. glossinicornis*, but median vitta of mesonotum fading out behind *prsc* and pollinosity of abdomen thinner.—*Head* moderately densely dusted greyish-white on parafacialia, clypeus and parafrontalia, less densely so on interfrontalia ; eyes practically bare ; frons at vertex almost one-third (0·30–0·33) head-width, somewhat longer than wide behind, evenly dilated with straight sides to lunula where it is more than two-fifths (0·43) head-width, interfrontalia hardly dilated forward, twice as wide at middle as a parafrontale, the latter markedly dilated forward and with setae as in *glossinicornis*, the outer vertical being absent, however, and the innermost postocular setula much smaller than the adjacent ones, ocellars weak ; parafacialia with a small descending inclinate frontal seta, a row of 5–6 strong down-curved setae, and an irregular, in places double, row of small down-curved black hairs, frontal profile slightly convex, facial profile markedly convex except below where it is straight, anterior extremity of frons only slightly more prominent than middle of parafacialia ; these hardly one-half, jowls almost twice, as wide as third antennal segment. The

latter of normal shape, falling short of mouth-margin by 1·5 times its own width ; arista bare (dusted), with short basal segment and straight third segment which is evenly tapered from base to middle ; insertion of antenna level with upper third of eye.—*Thorax* and scutellum with the setae as in *glossinicornis*, in the specimen from Abyssinia the small seta above apical declivity of scutellum paired.—*Abdomen* spindle-shaped to elongate-ovate, somewhat flattened, first segment without median marginals, second and third with no median and lateral discals and very strong median and lateral marginals, fourth with numerous strong setae on more than apical half, among which a discal row of very strong and a marginal row of less strong setae are distinguishable.—*Wings* greyish subhyaline with a brownish tinge along the veins, *Sc* and R_1 conspicuously browned ; veins testaceous, somewhat darker apically, apical cross-vein etc. broadly suffused (see key), r_{4+5} on underside with a single fine setula on basal node, on upperside setulae to *r–m* or slightly beyond ; r_1 reaching or slightly exceeding level of *r–m*, which lies at middle of discal cell, *m–m* straight and rather upright, meeting *m* slightly nearer to *r–m* than to apical cross-vein, the latter as in *glossinicornis*. Calyptrae greyish-white, subopaque, with whitish or pale-yellowish border and whitish fringe. Halteres dull reddish, somewhat infuscated.—*Legs* : fore tibia with 2 *p* and 3–4 *ad* setae, alternating small setae between the latter hardly developed ; mid femur on basal half with 2–3 strong *av* and 3 rather thin *pv* setae, mid tibia as in *glossinicornis* but with *pd* surface with only 2 setae ; hind legs as in *glossinicornis*.

Length 6·1–6·2 mm., of wings 4·6–4·9 mm.

NATAL : Weenen, vi. 25 (*H. P. Thomasset*), ♀ type. KENYA : Naivasha, ix. 39 (*H. J. A. Turner*), 1 ♀ paratype. ABYSSINIA : marsh near Lake Hora Abjata, 5000 ft., 18. xi. 26 (*J. Omer Cooper*), 1 ♀ paratype, without head. The Naivasha paratype in Coryndon Memorial Museum, Nairobi, the other two specimens in B.M.

WAGNERIA NUBILIPENNIS, sp. n., ♀

Glossy black with rather dense white dust on head and anterior part of thorax, otherwise rather thinly dusted greyish-white ; undusted median vitta of mesonotum complete but only moderately broad, the linear paramedian vittae being grey-dusted and therefore not completely integrated in it, outer vitta consisting of a moderately large *prst* spot behind *ph* and only a narrow *post* vitta to the outer side of the *ia*, the *post* part otherwise unevenly dusted whitish-grey and brownish-grey ; scutellum with thin greyish dust on dorsal surface ; abdomen with whitish-grey dust along anterior front margins of segments which gradually reaches hind margins at sides, becoming thinner and greyer at the same time, dust of fourth segment even less conspicuous and not exceeding basal third. Palpi pale orange, apex of second antennal segment and jowls dull reddish orange, interfrontalia rufous brown.—*Head* with silver-white dust on parafacialia and greyish-yellow dust on clypeus and jowls ; eyes virtually bare ; frons at vertex over a quarter (0·27) head-width, almost half as long again as wide at vertex, moderately dilated with gently concave sides to lunula where it is more than a third (0·36) head-width, inter-

frontalia distinctly dilated from the uppermost inclinate seta in both directions, as wide at middle as a parafrontale ; the latter with 4 strong decussate inclinate setae, 1 praevertical and 2 strong proclinate orbitals, the upper one not or hardly anterior to the uppermost inclinate seta, between it and the praevertical a proclinate setula, ocellars weak, inner verticals strong, outer ones absent ; parafacialia with a descending additional weak inclinate frontal seta and with a regular row of 6 strong down-curved setae, in addition with an outer row of very small black hairs, less than half as wide, jowls less than half as wide again, as third antennal segment. The latter of normal shape, moderately long, falling short of mouth-margin by about its own width, second segment also somewhat elongate, half as long as third ; arista bare (dusted), basal segments very short, basal fourth of third segment somewhat thickened ; antenna inserted slightly above middle of eye.—*Thorax* and scutellum with setae as in *glossinicornis*, but the scutellum in addition with a pair of straight preapical setae near apical fourth, which are twice as widely separated as the discal setae of the basal half, and with a smaller marginal seta between the distal two strong setae of each side.—*Abdomen* spindle-shaped, slightly flattened, first segment without median but with strong lateral marginals, second and third with strong median and lateral marginals and with rather strong median and weak lateral discals, the median marginals of the third segment shifted forward to second third of its length, fourth segment with a row of strong discals towards middle and of strong marginals towards apex, the median pair of each row conspicuously shifted forward (so that the median marginals lie halfway between the two rows).—*Wings* greyish subhyaline with the anterior part strongly smoky from *h* to apex of r_{4+5} with an infuscated border in R_1 extending over R_2 and anterior part of R_5 at apex, apical cross-vein and *m–m* conspicuously suffused, the suffusion on *m–m* broader behind and extending some distance basad along fifth vein, thus producing a second, smaller cloud ; intermediate part of r_1 and most of r_{4+5} with rather long and strong setulae on dorsal surface, ventral surface with a rather long setula only on basal node of r_{4+5} ; r_1 reaching level of *r–m*, which lies at middle of discal cell, *m–m* upright and straight, meeting *m* halfway between *r–m* and apical cross-vein, which is outwardly concave and four times the length of the stem of R_5.—Basicosta ochraceous yellow. Calyptrae hardly opaque, pale brownish-grey with whitish border and fringe. Halteres dull reddish, infuscated.—*Legs* : fore tibia with 2–3 *pd*, 1 *p* and 1 *pv* seta ; mid femur with 2 long and rather strong *av* and 3 hardly weaker *pv* setae on basal half and 5 short but quite strong *av* setae no apical half, mid tibia with 1 strong *av*, 1 weak *pv*, 4–5 *pd* and 4 *ad* setae, the second and third *ad* strong and separated from each other and the fourth by an additional small *ad* ; hind femur with a complete row of 7 strong *av* setae, and, on basal half, 3 strong *pv*, hind tibia as in *glossinicornis*.

Length 6·6 mm., of wings 5·8 mm.

KENYA : Meru, vii. 43 (*V. G. L. van Someren*), ♀ type.

An unusual species both by its clouded wings and the length of the setulose part of r_{4+5}.

WAGNERIA PROPLEURALIS, sp. n., ♀

Fuscous-black with not very dense whitish-grey dust, which is denser at neck and shoulders ; mesonotum with 5 dark vittae, the median one suffused, but well separated in front of suture, by whitish dust, from the linear undusted paramedian vittae, which extend beyond suture, outer vittae interrupted at suture and continued behind it by a dark streak between the *dc* and *ia*, dust more grey and pattern more suffused on disc behind suture ; scutellum thinly dusted brownish-grey ; abdomen moderately shining with bronze reflections, segments 2–4 with a whitish-grey dusted basal band, which occupies basal fourth on intermediate segments and basal sixth on fourth segment, the pale dust extending somewhat farther backward on lateral surface (in a strictly dorsal view the abdominal segments appear greyish bronze brown with a broad suffused band of thin whitish-grey dust close to base) ; antennae fuscous, palpi dark brown, legs fuscous with the tibiae slightly translucent dull reddish.—*Head* more densely dusted whitish grey on outer part of parafacialia and anterior half of parafrontalia, clypeus dusted yellowish grey ; eyes with long moderately dense (♀!) hairs ; frons three-tenths head-width at vertex and more than a quarter larger than wide there, almost parallel-sided in posterior third and rather strongly dilated with almost straight sides from there to lunula where it is more than two-fifths (0·42) head-width, interfrontalia parallel-sided, as wide as a parafrontale at middle ; parafrontalia with 4 strong decussate inclinate setae, the praevertical just over halfway between the third and fourth of these, the 2 proclinate orbitals almost level with the second and third, ocellars rather weak, inner verticals very strong, outer ones absent ; parafacialia with a descending weak additional frontal seta and a row of 5–6 down-curved setae, the upper 2–3 of which are rather weak, and on outer part a row of fine black hairs, about a third, and jowls almost twice, width of third antennal segment. The latter moderately long, falling short of mouth-margin by less than its own width ; arista bare (dusted) with short basal segments and slender third, which tapers evenly from base to beyond middle ; antenna inserted at middle level of eye.—*Thorax* with setae as in *glossinicornis* but scutellum as in *nubilipennis*.—*Abdomen* spindle-shaped, slightly flattened, first segment without median but with strong lateral marginals, second with moderately strong median discals and strong median and lateral marginals, third with a median pair of very strong setae slightly behind middle, a pair of weak lateral discals and 2 pairs of very strong lateral marginals, fourth segment with strong setae on dorsal surface in somewhat irregular arrangement probably derived from the condition prevailing in *nubilipennis*.—*Wings* brownish subhyaline, *Sc*, *r–m*, *m–m* and apical cross-vein narrowly suffused ; apical section of r_1 with 3–4 setulae near apex, r_{4+5} setulose on dorsal surface to *r–m*, on ventral surface with 2–3 setulae on basal node ; r_1 reaching level of *r–m*, which lies at middle of discal cell, *m–m* somewhat sinuous and slightly oblique, reaching *m* halfway between *r–m* and apical cross-vein, the latter strongly concave outwardly, especially in posterior part, so that it forms a sharp angle with both r_{4+5} and *m*, almost thrice as long as stem of R_5. Calyptrae greyish brown, subopaque, with contrasting whitish border and fringe. Halteres fuscous.—*Legs* : fore tibia with 2 *p* setae and 4 *ad*, which alternate

with small setae ; mid femur with 4 strong *av* and 3–4 slightly thinner *pv* setae on basal half and a row of 6–8 semi-decumbent shorter *av* and *pv* setae on apical half, mid tibia with a strong *av*, 4–5 *pd*, 1 *p* and 4 *ad* setae, of which the second and especially the third are strong ; hind femur with a complete row of 7 strong *av* setae and, on basal half, 3–4 long *pv* setae, hind tibia with 3 successively stronger *av* setae and a row of alternatingly short and strong *ad* and *pd* setae.

Length 6·0 mm., of wings 5·6 mm.

UGANDA : Bwamba Valley, Ruwenzori, vii. 45 (*G. R. C. van Someren*), ♀ type.

Apart from the propleural hairs, the setae of the third abdominal segment and the coloration of the calyptrae are distinctive characters of this species.

WAGNERIA KIRBYIFORMIS, sp. n., ♂ ♀

Black with not very dense greyish-white dust, which is denser on head, neck and shoulders ; mesonotum with 3 rather narrow undusted vittae, the median one not exceeding the *prst acr* at sides, somewhat suffused behind, apparently reaching scutellum, outer ones consisting of a *prst* spot and a faint vitta behind suture between the *dc* and *ia*, both of which lie on the pale-dusted area, paramedian vittae distinct in front of suture, grey dusted, matt, and neatly separated from the median vitta ; scutellum with thin whitish-grey dust ; abdominal segments 2–4 with a pale-dusted vitta on basal third to fifth, which is broadly suffused behind and which is more darkly dusted on a narrow median vitta. Palpi fuscous-brown, antennae fuscous, base of third segment narrowly translucent pale dull reddish. Legs fuscous black.—*Head* with rufous-brown interfrontalia, eyes with moderately long and dense (in female less dense) hairs ; frons of male at vertex more than a quarter (0·26–0·28) head-width, gradually more strongly dilated with concave sides to lunula where it is almost two-fifths (0·38–0·39) head-width, interfrontalia evenly and moderately dilated from anterior ocellus to lunula, half as wide again at middle as a parafrontale, the latter with 6 inclinate setae and, not much behind the last one, at level of anterior ocellus, a moderately strong praevertical, ocellars weak, inner verticals very strong, outer ones absent ; frons of female at vertex three-tenths (0·29) head-width, gently dilated with hardly concave sides to lunula where it is one-third (0·34) head-width, interfrontalia almost parallel-sided (?, ♀ paratype somewhat teneral), hardly wider than parafacialia, the latter with 4 strong inclinate setae and, just anterior to level of anterior ocellus, a strong praevertical, and 2 strong proclinate orbitals, ocellars weak, inner verticals very strong, outer ones rather weak ; outer part of parafrontalia in both sexes with rather numerous proclinate black setulae ; parafacialia with a descending small inclinate frontal seta near basal third of second antennal segment and with (5–) 6 strong down-curved setae, at middle about half as wide, jowls half as wide again as third antennal segment. The latter falling short of mouth-margin by less (♂) or slightly more (♀) than half its own width, the segment being rather broad with gently convex dorsal (=anterior) margin in male ; arista bare (dusted) with short basal segments, third segment thickened only in basal fourth ; antennae inserted somewhat above middle

level of eye.—*Thorax* with setae as in *glossinicornis*, scutellum as in *nubilipennis*.—*Abdomen* elongate ovate (♂) or ovate (♀), in female slightly flattened, setae of anterior segment as in *propleuralis*, third segment with a pair of strong median discals and of very strong median and lateral marginals between latter of which 1–2 weaker marginals are present, fourth segment with a row of strong discals and strong marginals and a few irregularly arranged rather strong setae ; hypopygium not prominent.—*Wings* with the fore margin strongly infuscated in male from *Sc* to beyond r_{2+3} and its apex, the darkened area suffused behind, the infuscation faint in female ; r_1 bare, r_{4+5} on dorsal surface setulose almost or quite to level of *m–m*, on ventral surface with only a few setulae on basal node ; r_1 slightly exceeding level of *r–m*, which lies at or beyond middle of discal cell, *m–m* straight and hardly oblique, apical cross-vein about eight times as long as stem of R_5, more or less outwardly concave behind, thus forming a sharp angle with *m*, though this angle may be narrowly rounded at tip. Calyptrae subopaque whitish grey with yellowish-grey border and whitish fringe. Halteres dull reddish, conspicuously infuscated.—*Legs* : fore tibia with 2 strong *p* and 4 *ad* setae ; mid femur with 2–3 strong *av* and 3 slightly thinner *pv* setae on basal half, a row of 3–5 short semi-decumbent but rather stout *av* setae at apex and a row of fine rather long *pv* setae on apical half, mid tibia as in *propleuralis* ; hind femur with 2–3 strong *av* setae near base and another 3–4 near apex, linked with the former by stronger setulose hairs, and with 2–4 strong *pv* setae on basal half, hind tibia as in *propleuralis*.

Length 6·5–7·3 mm., of wings 5·6–6·1 mm.

Belgian Congo : Kilo, Kibali-Ituri, v. 30 (*G. du Soleil*), ♂ type, in Mus. du Congo Belge, Tervueren ; same data, iv. 31 1 ♂ paratype, in B.M. ; Rutshuru, 24. iv. 36 (*L. Lippens*), 1 ♀ paratype (in Mus. Congo Belge).

In the female paratype the extreme base of the wings and of the calyptrae are dull orange. This coloration is believed to be due to post-mortem changes, as the specimen is strongly greasy.

WAGNERIA GUTTIPENNIS, sp. n., ♂ ♀

Black with brassy reflections on disc of dorsal surface, rather thinly dusted whitish-grey, the dust somewhat thicker at neck and shoulders, the vittae faint and poorly defined, in front of suture 1–2 streaks originating from the *ph* and *prst*, an almost linear median vitta and the more regularly defined but not less faint paramedian vittae visible, behind the suture some irregular slightly darker, less dusted streaks but no clearly defined vittae present, scutellum thinly dusted pale grey, abdomen with dark dots at the base of the hairs and setae and some brownish dust along median line but without basal pale-dusted bands. Palpi brown, antennae fuscous, legs piceous with dull-reddish tibiae.—*Head* rather densely dusted greyish-white on anterior surface ; eyes densely long-haired ; frons at vertex about one-third (0·31–0·33) head-width, moderately dilated with somewhat concave (♂) or straight (♀) sides to lunula where it is well over two-fifths (0·43–0·47) head-width, interfrontalia very slightly dilated anteriorly, almost as wide at middle as a parafrontale, the latter with four very strong inclinate setae and on outer part, somewhat

anterior to the last of them, a strong praevertical and farther forward 2–3 proclinate setae, in addition with scattered setulose hairs, ocellars rather weak, inner verticals very strong, outer verticals absent ; parafacialia with the usual descending small inclinate frontal seta and 5–8 strong down-curved setae and with rather numerous black setulose hairs, hardly (♂) or fully (♀) half as wide, jowls half as wide again (♂) or almost twice as wide (♀), as third antennal segment. The latter in male evenly somewhat dilated to apex, which is almost squarely truncate, the dorsal (anterior) angle being very pronounced and slightly less than 90°, the dorsal edge straight, in female only slightly dilated with the apical angle more rounded, falling short of mouth-margin by about half (♂) or almost fully (♀) its own width ; arista bare (dusted), with short basal segments, third markedly thickened in basal fourth, especially in male.—*Thorax* with setae as in *glossinicornis*, scutellum as in *nubilipennis*.—*Abdomen* spindle-shaped, in female slightly flattened, first segment without median but on each side with 2–3 strong lateral marginals, intermediate segments with strong median and lateral marginals, moderately strong median and weak lateral discals, and with 1–3 weaker setae between the median and lateral marginals, fourth segment half as long again as third and with 3–4 transverse rows of setae, those of the proximal row being strongest, the marginal ones weakest.—*Wings* brownish subhyaline with bright orange base and strong fuscous suffusions in *Sc* and on *r–m*, *m–m* and apical cross-vein, r_1 with a few setulae near apex of both surfaces, r_{4+5} setulose on dorsal surface to level of *m–m* or at any rate to well beyond *r–m*, on ventral surface only with 1–3 setulae on basal node ; r_1 somewhat exceeding level of *r–m*, which lies at middle of discal cell, *m–m* very slightly sinuous or almost straight, hardly oblique, meeting *m* halfway, or slightly more than halfway, between *r–m* and apical cross-vein, which is outwardly concave, and much less than twice the length of the stem of R_5. Upper calyptra pale orange, lower one bright-orange at base, gradually becoming yellowish smoky, border slightly paler, fringe pale yellowish. Halteres dull reddish yellow.—*Legs* : fore tibia with 1–2 small *pd*, 2 strong *p* and 4–5 *ad* setae ; mid femur with four long *av* and four somewhat thinner *pv* setae on basal half and somewhat irregular shorter *av* and *pv* setae on apical half, mid tibia with a strong *av*, about five *ad*, of which the middle one is the strongest, and the first and fourth weaker, 3(–4) successively stronger *pd* and 1(–2) *p* setae ; hind femur with a row of 5–7 strong *av* and on basal half 3 very strong *pv* setae, in addition near base with some irregular *a* and *p* setae, hind tibia with 3 successively stronger *av* 4 successively stronger *pd* setae and a row of alternating short and strong setae on *ad* surface.

Length 5·9–6·8 mm., of wings 4·6–5·4 mm.

KENYA : Naivasha, vii. 37 (*H. J. A. Turner*), ♂ type ; Kijabi, vi. (*V. G. L. van Someren*), 4 paratypes (2 paratypes to be returned to Dr van Someren).

WAGNERIA FRATELLA Villeneuve

Villeneuve 1938 *Bull. Mus. R. Hist. nat. Belg.* **14** (4) : 5.

Type : BELGIAN CONGO : Kibati (plaine de lava), N-Kivu, x. ii. 33, in Mus. Congo Belge, Tervueren.

In B.M. from : UGANDA : Summit of Mt. Sabinio, Kigezi Distr., 11–11,500 ft., xi. 34 (*J. Ford*), 1 ♂ ; Mt. Muhavura, 10–12,000 ft., Kigezi Distr., xi. 34 (*F. W. Edwards*), 1 ♂ ; Mt. Mgahinga, 10–11,000 ft., Kigezi Distr., xi. 34 (*F. W. Edwards*), 2 ♂, 1 ♀ ; Namwamba Valley, 10,200 ft., Ruwenzori, xii. 34–i. 35 (*F. W. Edwards*), 1 specimen. KENYA : Mt. Kinangop, Aberdares, 10,000 ft., x. 34 (*F. W. Edwards*), 1 ♂, 1 ♀ ; Mt. Elgon, Heath Zone, 10,500–11,500 ft., ii. 35 (*F. W. Edwards*), 1 ♀. Seen from UGANDA : Bwamba Valley, Ruwenzori, vii. 45 (*G. R. C. van Someren*), 1 ♀.

WAGNERIA DECOLOR, sp. n., ♂ ♀

Very closely related to *W. fratella* Villen., from which it differs only in coloration, the male genitalia and narrower frons. Calyptrae and base of wings greyish-white instead of ochraceous, wings not browned, *Sc* not markedly infuscated, transverse veins fuscous-brown but not or only very narrowly suffused. Frons at vertex less than one-third (0·29–0·32) head-width (in

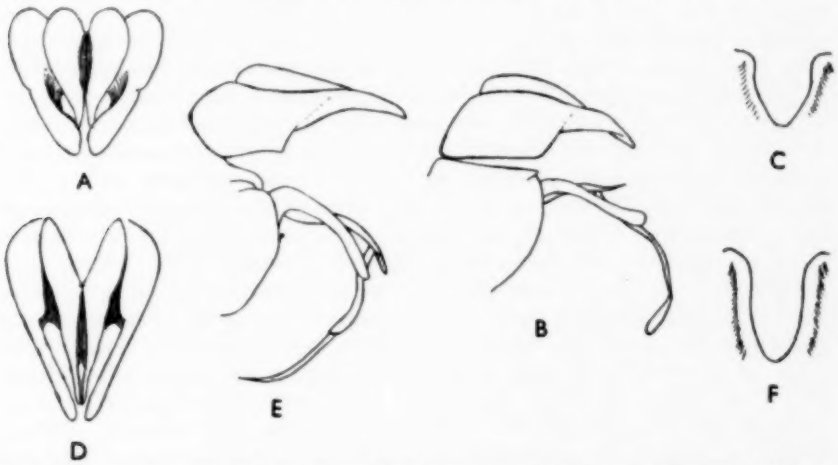

Fig. 3.—*Wagneria fratella* Villen. A, superior (inner) and inferior (outer) forceps, with hairs omitted, posterior view ; B, forceps, penis and paramere, left side ; C, median cleft in posterior margin of fourth visible (actual fifth) ventrite, ventral view.
Wagneria decolor sp. n. D, E, F, the structures corresponding to A, B, C respectively.

fratella 0·35–0·37). Forceps (Fig. 3D) more slender than in *fratella* (Fig. 3A). Characters otherwise as in *guttipennis*, but apex of r_1 as a rule without setulae and apical cross-vein about twice as long as stem of R_5, third antennal segment not markedly dilated ; fore tibia with 5–6 *ad* setae ; mid femur with only 2–3 long *av* and *pv* setae on basal half.

Length 4·8–6·7 mm., of wings 4·5–5·5 mm.

UGANDA : Nyakasura, 26. x. 32 (*J. F. Shillito*), ♂ type, 1 ♀ paratype ; Mobuku Valley, Ruwenzori Range, 7,300 ft., xii. 34–i. 35 (*F. W. Edwards*), 1 ♂ paratype. S. AFRICA : Milnerton, Cape Town, ii. 26 (*R. E. Turner*), 1 ♀ paratype. KENYA : Naivasha, vii. 37 (*H. J. A. Turner*), 1 ♂, 1 ♀ paratypes (returned to Coryndon Museum Nairobi).

The characters might indicate that this is only a subspecies (lowland form?) of *fratella*, but as far as can be judged from the small number of specimens and localities, this does not appear probable, as the type of *fratella* has been found at only a moderate altitude, whereas a paratype of *decolor* has been found at 7,300 ft.

WAGNERIA SALTI, sp. n., ♂♀

Black with strong brassy reflections on disc of dorsal surface, moderately densely dusted whitish-grey, near median vitta with some brown dust, median vitta fuscous-black, almost undusted and somewhat irregularly defined, paramedian vittae linear, dusted fuscous-brown, slightly converging to neck, soon fading out behind suture, outer vittae fuscous-black, somewhat irregularly defined and broadly interrupted at suture ; scutellum wholly brown-dusted, abdomen on segments 2–4 with densely whitish-dusted basal bands, which are at most narrowly and faintly interrupted on median line on posterior segments but rather conspicuously so on second. Palpi pale testaceous, antennae fuscous, legs piceous black.—*Head* with rather dense brownish-grey dust, interfrontalia fuscous-black with conspicuous brown dust ; eyes with rather dense long hairs ; frons at vertex more than a third (0·34–0·39) head-width, rather strongly dilated with somewhat concave sides to lunula, where it is about one-half (0·46–0·50) head-width, interfrontalia markedly dilated forward, about as wide at middle as a parafrontale, the latter with 4 very strong inclinate setae and, on outer part, at or very slightly behind level of last of them, with a strong praevertical and, further forward 2–3 proclinate setae, in addition with scattered black setulae, ocellars and verticals as in *guttipennis* ; parafacialia with the usual small descending frontal seta, which may be duplicated and with 5–6 strong down-curved setae, in addition with some small black setulae, hardly (♂) or fully (♀) half as wide, jowls half as wide again (♂) or more than twice as wide (♀) as third antennal segment. The latter almost as in *guttipennis*, but the dorsal apical angle in male less pronounced.—*Thorax* with 2+2 strong *acr*, the first and last pairs slightly weaker, 2+3 strong *dc*, other setae and scutellum as in *glossinicornis*.—*Abdomen* as in *guttipennis*, the median marginals of the third segment as a rule more markedly shifted forward, lying just behind two-thirds of the length.—*Wings* brownish subhyaline, the brownish tinge as a rule slightly more noticeable along the veins, especially apical cross-vein and *m–m* ; costal spine almost reaching tip of *Sc*, r_1 with 1–3 strong setulae on dorsal surface between *h* and apical level of *sc*, r_{4+5} setulose dorsally to *r–m* or somewhat beyond, ventrally with 1–2 setulae on node, r_1 somewhat exceeding (in one ♀ only reaching) level of *r–m*, which lies distinctly basad of middle, *m–m* straight and somewhat oblique, meeting *m* closer to apical cross-vein than to *r–m*, apical cross-vein conspicuously concave outwardly in posterior part, both distal angles of R_5 thus acute, stem less to slightly more than half as long as apical cross-vein. Calyptrae whitish, subopaque. Halteres dull reddish, strongly infuscated.—*Legs* : fore tibia as in *guttipennis* ; mid femur with 2–3 long *av* and 3–4 somewhat thinner long *pv* setae, mid tibia with 1(–2) *av* setae, 3–4 *ad*, of which the third is the strongest, 3 successively stronger *pd* and 1 rather small *p* ; hind

femur as in *guttipennis*, hind tibia with 2–3 rather small *av*, 2–3 *pd* (very strong except for the most proximal one) and a row of alternating short and strong setae on *ad* surface.

Length 4·9–5·8 mm., of wings 4·2–4·8 mm.

TANGANYIKA : Shira Plateau, Kilimanjaro, Camp 2, 12,450 ft., 29. x. 48 (*G. Salt*), ♂ type, 1 ♂ 1 ♀ paratypes ; W. Shore of Lake Manyara, vi–ix. 35 (*B. Cooper*), 4 ♂ 2 ♀ paratypes.

WAGNERIA CANINA Mesnil

Mesnil 1950, *Bull. Inst. R. Sci. nat. Belg.* **26** (3) : 2.

Type : BELGIAN CONGO : Volcan Sabinyo, vallee Rwebeya, Ruanda, 3000 m. In B.M. from : BELGIAN CONGO : Tshibinda, viii. 31 (*T. D. A. Cockerell*), 1 ♂. ABYSSINIA : Mt. Zuquala, c. 9600 ft., 25. x. 26 (*H. Scott*), 1 ♀. NATAL : Weenen, iii. 25 (*H. P. Thomasset*), 1 ♀.

WAGNERIA PALLIDIPENNIS, sp. n., ♂ ♀

Coloration and pollinosity as in *salti* but pale pollinosity more greyish, especially on abdomen, which is moderately thickly dusted whitish-grey, with the dust slightly thicker laterally towards base but not forming white bands, and greyish brown on disc, a narrow median vitta fuscous, but the pattern nowhere very contrasting. Palpi dull brown to fuscous-brown, antennae fuscous, legs piceous black with the tibiae more or less translucent brown.—*Head* rather densely dusted whitish-grey, interfrontalia fuscous with brownish-white dust ; eyes with dense long hairs ; frons at vertex about three-tenths (0·27–0·30) head-width, rather strongly dilated with concave sides to lunula, where it is about two-fifths head-width (0·39–0·42) ; interfrontalia slightly dilated forward, somewhat wider at middle than a parafrontale, the latter with four very strong inclinate setae, and somewhat behind and outward of the last of them with a strong praevertical, proclinate orbitals rather weak, especially the hindmost one, hairs ocellars and verticals as in *guttipennis* ; parafacialia with the usual small descending frontal seta, 5–8 strong down-curved setae and a row of black down-curved setulae, half as wide, jowls fully as wide in male, as the large third antennal segment, the latter in female of normal size, so that the parafacialia are more than half and the jowls twice its width. Third antennal segment falling short of mouth-margin by half (♂) its width or its own width (♀) ; arista as in *guttipennis*.—*Thorax* with setae as in *glossinicornis*, scutellum as in *nubilipennis*.—*Abdomen* as in *salti*.—*Wings* subhyaline with a very slight brownish tinge, apical cross-vein, *m–m* and sector of *m* between these cross-veins darker, though not markedly suffused ; costal spine about half as long as in *salti*, r_1 with about 4–6 setulae from *h* to apical level of *sc*, setulae on r_{4+5} not exceeding *r–m* dorsally, on ventral surface restricted to node, r_1 slightly exceeding level of *r–m*, which lies at middle of discal cell, *m–m* straight and hardly oblique, meeting *m* somewhat farther from *r–m* than from bend, the latter obtuse, the apical cross-vein being only slightly concave outwardly in posterior part, about thrice as long as stalk of R_5. Calyptrae greyish subopaque, slightly tinged ochraceous. Halteres dull yellowish red.—*Legs*: fore tibia with 2 strong *p* and 4–5 short *ad* setae,

sometimes also with a small *pd* ; mid femur with 3 long *av* and 3 thinner long *pv* setae on basal half, mid tibia 1(–2) *av* setae, 3–4 *ad* of which the penultimate is very strong and the propenultimate, when present, much stronger than the remaining two, 3–4 *pd* which become gradually stronger towards apex, and a rather small *p* seta ; hind femur with 6–7 strong *av* setae over the whole length and 2–3 long and strong *pv* on more than basal half, in addition with a number of irregular long *a* and *p* setae near base, hind tibia with 3–4 rather small *av*, 4 successively stronger *pd* and a row of alternating short and strong *ad* setae.

Length 5·6–6·1 mm., of wings 4·3–5·2 mm.

KENYA : Naivasha, vii. 37 (*H. J. A. Turner*), ♂ type, 4 ♂, 2 ♀ paratypes (some paratypes returned to Coryndon Museum, Nairobi). BELGIAN CONGO : Gîte de Nkuli, Ruanda, 18. and 25. iii. 36 (*L. Lippens*), 2 ♂ paratypes (1 returned to Congo Museum, Tervueren).

WAGNERIA RUFITIBIA Villeneuve

Villeneuve 1938, *Bull. Mus. nat. Hist. nat. Belg.* **14** (4) : 4.

Type : NATAL : Wartburg (in B.M. this specimen is a male). In B.M. from : KENYA : Meru, vii. 43 (*V. G. L. van Someren*), 1 ♀ ; Chyulu Hills 5600 and 6000 ft., vi. 38 (*Coryndon Mus. Exp.*), 1 ♂ 2 ♀. UGANDA : Nkokonjer, 23–27. xii. 26 (*G. L. R. Hancock*), 1 ♀. Seen from : KENYA : Naivasha, vii. 37 (*H. J. A. Turner*), 1 ♀. BELGIAN CONGO : Rwankwi iv. 48 (*J. V. Leroy*), 1 ♀.

One of the Chyulu Hills females has the lower calyptra brown with whitish margin, but it does not differ from the typical form in other characters.

WAGNERIA VIDUA Mesnil

Mesnil 1950, *Bull. Inst. R. Sci. nat. Belg.* **24** (3) : 3.

Type : BELGIAN CONGO : Kundhuru y Tshuve, Col. Gahinga-Sabinyo, Ruanda, 2600 m. (bambous). In B.M. from : UGANDA : Mt. Sabinio, Kigezi Distr., 8000 ft., xi. 34 (*F. W. Edwards*), 1 ♂.

In spite of the different text of the labels the two specimens have been found at almost the same spot, as the height is the same, and as Mgahinga and Sabinio are hardly two miles apart, each rising to over 11,000 ft. Edwards and his companions stayed a week in Lugezi Camp at 7–8000 ft. and visited the summits of both mountains from the camp, so that the specimen like the one described by Mesnil must have been collected between the two mountains.

A male (?) from Mt. Kinangop, Aberdare Range, 10,000 ft. x. 34 (*F. W. Edwards*), differs from *vidua* by the greater number of *acr*. It is in poor condition and is probably only a variation or geographical race of *vidua*. The setae on both r_1 and r_4+_5 extend further towards apex.

3. CAMPYLOCHAETINI

The *Campylochaeta* described by Bezzi (1908) and Curran (1927) do not belong to the present subfamily but to Goniinae tribe Eryciini. Mesnil discovered that the Campylochaetini are nevertheless represented in the Ethiopian region (1944, *Rev. franc. Ent.* **11** : 16) and has more recently (1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 7) defined four species of the genus *Frivaldzkia*,

including two from the Ethiopian region. In these species the parafacialia are bare, the apical cross-vein is shorter than the preceding section of *m*, the *prst ia* is present, etc., as in *Campylochaeta* (*Elpe*) *inepta* Meig. (=*longicornis* Fln. of Schin. nec Fln.). *Frivaldzkia* Schin. (original spelling) was created as a nom. nov. for *Fallénia* Meig. 1838 nec Meig. 1820, and the genotype is therefore that of *Fallénia* Meig. 1838, namely *F. longicornis* Fln., which differs according to Stein (1924, (*latigena*) pp. 104-105) and Townsend (1936, **3**, p. 232 ; 1939, **8**, p. 368) from the forms here mentioned by closed or short-petiolate R_5, setulose parafacialia, shorter penultimate section of *m*, absence of a *prst ia*, etc. The Ethiopian species should therefore not be place in *Frivaldzkia* but in *Elpe* R.-D. (=*Hypochaeta* B.B.), whether this is considered a distinct genus or only a subgenus of *Campylochaeta*.

CAMPYLOCHAETA Rond. 1859 (sbg. *ELPE* R.-D. 1863 = *HYPOCHAETA* B.B. 1890)

1 (2). Occipital dilation with whitish hairs and one strong black seta on anterior end. Second tergite without discals and without (according to Mesnil) or with only small marginals. Ocellars small, about half as long as verticals. *m–m* strongly oblique, upper distal angle of discal cell being less than 60° (and nearer *r–m* than bend). Parafacialia broader. 2 *post acr.* Dorsum almost evenly cinereous-grey or whitish-grey dusted..... *risbeci* Mesn.

2 (1). Occipital dilation black-haired (but lower part of occiput with whitish hairs) with 1–2 stronger and longer setae at anterior end. Second tergite with strong discals and marginals. Ocellars long and strong. *m–m* rather upright, the upper distal angle of discal cell being almost 90; (and nearer *r–m* than bend). Parafacalia only a third to fourth width of third antennal segment. 3 *post acr.*

3 (4). Dorsum uniformly dusted lead-grey. Wings uniformly browned. ♂ : frons as wide as an eye (in dorsal view) i.e. one-third head-width [ex Mesnil]..... *plumbea* Mesn.

4 (3). Mesonotum with four conspicuous fuscous-brown vittae, the dust between them whitish grey, especially in front of suture. Tergites conspicuously brown-dusted posteriorly, the brown dust reaching the discals (at anterior third) at median line, but only about middle on dorso-lateral surface of intermediate segments (the boundary, however, somewhat shifting). Wings hardly browned. ♂ : Frons a quarter head-width..... *vansomereni* sp. n

CAMPYLOCHAETA RISBECI Mesnil

Frivaldzkia risbeci Mesnil 1944, *Rev. franç. Ent.* **11**: 16, 1952, *Bull. Inst. R. Sci. nat. Belg.* **27** (2):8.

Typical locality : Bambey, SENEGAL. In B.M. from : NIGERIA : Sumuru, Zarda, xi. 50, ex larva of *Anomis flava* F. (*A. F. H. Baillis*). FRENCH SUDAN : Ex larva of (*Cosmophila*=) *Anomis flava* F. UGANDA : Kampala, 21. x. 29, same host (*G. L. R. Hancock*).

CAMPYLOCHAETA PLUMBEA Mesnil

Frivaldzkia plumbea Mesnil 1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 8.

Typical locality : BELGIAN CONGO : Tshamugussa (Bweza), 2250 m., Parc Nat. Albert.

CAMPYLOCHAETA VANSOMERENI, sp. n., ♂

Fuscous-black, rather densely dusted whitish-grey, mesonotum with four narrow undusted vittae, which from level of *ph* backward are suffusedly margined with brown dust and tend to fuse behind suture ; scutellum not very thickly dusted greyish-brown ; abdomen with densely pale-dusted basal bands, which occupy one-fourth to one-sixth length of segment on median line but one-half that length at sides, and the hind margins of which are suffused, otherwise brown-dusted with slight brassy reflections ; antennae fuscous with the extreme base of the third segment pale testaceous like the palpi ; tibiae pale ferruginous, somewhat darkened at base. *Head* moderately densely dusted whitish-grey, four-fifths as long at vibrissae as at lunula ; eyes densely long-haired ; frons at vertex a quarter head-width, somewhat dilated with concave sides to lunula where it is over a third (0·35) head-width, interfrontalia with decussate black hairs, somewhat broadened anteriorly, fully twice as wide at middle as a parafrontale, the latter with four strong (gradually smaller) inclinate setae followed closely by a fifth much weaker and more reclinate than inclinate seta at level of ocellars, to the outer side with a row of rather long inclinate black setulose hairs, ocellars very long and strong, inner verticals even longer ; face strongly concave, mouth-margin receding between vibrissae, facial ridges with about seven strong setae interspersed with setulose hairs almost up to level of arista, parafacialia on upper part with two small descending frontal setae, about a quarter, jowls more than fully, width of third antennal segment. The latter very long and broad, five times as long as second, falling short of mouth-margin by a third its own width, antenna inserted at level of upper third of eye ; arista rather long, incrassate on basal third, very finely short-pubescent.—*Thorax* with 3 +3 *acr*, 3 +3 (the second *prst* one weak) *dc*, 1 +3 *ia* (the first two weak), 2–3 *ph*, a short *pra*, the other dorsal setae as usual ; propleural depression with long white setulose hairs, lower prostigmal fine, downcurved, 1 +1 very strong rather approximated *stpl* ; scutellum with rather strong basal, very strong diverging lateral, weak subapical, and strong decussate apical setae, dorsal surface with a pair of preapicals.—*Abdomen* oblong-ovate, dorsal basal excavation reaching hind margin of first segment, which has no median, but strong lateral, marginals, second and third segments with strong median, and weak or strong lateral discals and strong median and lateral marginals, the median setae twice as widely separated on third segment as on first, and the discals on both segments well before middle of length; fourth segment with a row of strong discal setae almost at middle and a row of strong marginals, closely followed by a row of weak marginals.—*Wings* subhyaline with a brownish-ochraceous tinge, veins bare except for four setulae (one of them rather strong) on dorsal and two on ventral surface of node at base of r_{4+5} ; r_1 considerably passing level of *r–m*, which lies at middle of discal cell, *m–m* straight and hardly oblique, meeting *m* much closer to *r–m* than to bend, the latter rather broadly rounded, apical cross-vein strongly oblique and gently concave outwardly, R_5 narrowly open apically. Calyptrae greyish subhyaline, the lower one rather smoky, with pale yellowish-grey border and fringe. Halteres reddish-yellow.—*Legs* : Fore tibia with 4–5 successively stronger *ad* and 2 strong *p* setae ; mid femur

with 1–2 long, rather fine *av* setae near base and 3 somewhat stronger *pv* on basal half, apical half with a row of 6–8 rather short semidecumbent *av* setae and with 4–5 *pv* setae, mid tibia with a strong *av* seta, 3 *ad*, of which the middle one is much the strongest, and 2 strong and 2–3 weak *pd* setae ; hind femur with 1–2 long *av* setae near base, 1 strong and long *pv* towards middle and a row of 4–5 semi-decumbent setae or setulae on *av* and *pv* surfaces respectively, hind tibia with 3 rather short *av* setae, 5 *pd* setae, of which the second and fourth are strongest, and an *ad* row of alternating short and strong setae, a seta just beyond middle being the strongest.

Length 5·8 mm., of wings 4·8 mm.

KENYA : Meru, vii. 43 (*V. G. L. van Someren*), ♂ type.

4. HELOCERINI

The two Ethiopian genera placed in this tribe are probably not very closely related, *Glaurocara* having much in common with the Dufouriini, from which it was only excluded because its *post ia* are spaced for three (though the first one is absent or weak). However, since publishing the paper on the Ethiopian Phasiinae (1944) I have recognised (1954) that the character of the *ia* used in Mesnil's classification (1939, **23,** 1944, **17**) does not clearly separate the Dufouriini from the Macquartiinae. If the Dufouriini, to which *Thrixion* is closely related, Aulacocephalini, Oestrini and Acemyini (the latter have three *post ia*, usually a small *pv* apical seta on the hind tibia and often the prosternum setulose) were removed from the Phasiinae, the latter would contain only parasites of Heteroptera, as far as reliable records are available, and would form a perfectly natural group. Unfortunately, in *Minella*, *Weberia pseudofunesta* and *Thrixion* two strong and well-defined *post ia* are present, which are as widely separated as in many undoubted Phasiinae. Moreover, the female genitalia of *Weberia* are very similar to those of *Ocyptera*, and Rubtzov's (1951) studies of the male genitalia indicate relationships between *Acemya* and the Phasiini (but would place *Rondania*, *Syntomogaster* and *Minella*=*Dufouria* (!) in Dexiinae). Nor have characters been found so far which would in a simple way enable the Phasiinae to be restricted as indicated above.

Again, Helocerini and Macquartiini are not very sharply defined from each other, and *Glaurocara* might also have been dealt with in the latter tribe. However, this can hardly be done with *Phytomypterina* (described below), and the two aggregates can be more easily separated, if Glaurocara and *Phytomypterina* are united in one tribe. These genera are separated as follows.

1 (2). Apical cross-vein and bend of *m* present, the latter with a genuine appendage ; *c* reaching *m*. Arista longer than third antennal segment, incrassate only at base. First *post ia* weak or absent. Abdominal sutures obsolete, except at sides. *pv* apical spur of hind tibia absent ..... *Glaurocara* Thoms.

2 (1). Apical cross-vein, *m*–*m* and bend of *m* absent, *m* ending at the place where the bend is usually found ; *c* only slightly exceeding r_{2+3} (sic!). Arista shorter than third antennal segment, incrassate

to tip. First *post ia* distinct. Abdominal sutures everywhere distinct. *pv* apical spur of hind tibia present..... *Phytomypterina* gen. n.

GLAUROCARA Thomson 1868

Thomson 1868, Eugenies Resa p. 518. Townsend 1931, *Ann. Mag. nat. Hist.* (10) **8** : 386. n. syn. *Oestrocharis* Villeneuve 1927, *Rev. Zool. Bot. afr.* **15** : 118 ; Villeneuve 1930, *Ann. Bull. Soc. ent. Belg.* : 56 ; Townsend 1931, l.c. 387.

Glaurocara Thoms. 1868, *Oestrocharis* Villen. 1927 and *Oestrocara* Tns. 1935 differ from the other genera placed by Townsend (1936, M.M. **3** : 96) in Glaurocarini by a more or less long stump of m_2 arising from the bend of *m*. Only *Mesembrinormia* Tns. (Neotropical region) shows the same character but differs by four *post dc* (instead of three as in the others). *Glaurocara* and *Oestrocharis* were described from the Ethiopian region (including Mauritius), but Townsend (1938, M.M. **7** : 229) stated that *Semisuturia nigricornis* Mall. and *flavicornis* Mall. belong to *Oestrocharis* (whilst the genotype of *Doddiana* = *Semisuturia* has no trace of an appendage), and the same applies to *punctigera* Mall. Like *S. nitidiventris* Mall., the genotype and only species of *Oestrocara* Tns., these species differ from *Doddiana* by the presence of small straight apical scutellars between the strong diverging subapical scutellars and by the presence of the m_2 stump. *Oestrocara* Tns. is distinguishable from the other forms by the presence of median discals on the intermediate abdominal segments. In my view this gives it the status of a subgenus rather than of a genus. Nothing of importance, however, appears to separate *Oestrocharis* from *Glaurocara*, so that I treat the former as a synonym, and it is probably an absolute synonym.

Townsend distinguishes *Glaurocara* (female type of *flava*) from *Oestrocharis* (male type of *lutescens*) by the wider jowls of the former. The series of ten specimens from Rutshuru shows, however, that this is a secondary sexual character, the female having much smaller eyes and therefore broader jowls. As he states in 1931 (p. 387) and as can be inferred from Villeneuve's description, the male type of *lutescens* from the Cape Province has no median marginals on the first abdominal segment. This species thus does not seem to be distinct from *flava*. At any rate the descriptions of Thomson and Villeneuve fit the female and male respectively of a species which is widely distributed in Africa and which I consider to be *G. flava*. *Oestrocharis lutescens* thus would seem to be a synonym of the genotype of *Glaurocara*. On the other hand specimens with strong median marginals on the first segment from W. Africa, which formerly have been named *O. lutescens* Villen. by Townsend, are a different species according to him (1931, p. 387), and this form is here described as *G. townsendi* sp. n.

Key to the Ethiopian species of Glaurocara

1 (2). First tergite without median marginals. *prst acr* absent. Scutellum markedly convex. Third antennal segment less than twice length of second. ♀ : jowls one half greatest diameter of eye ; outer vertical absent ; interfrontalia at middle narrower than a parafrontale ; tergites separated by narrow brown bands or lines, the fourth often, and the third sometimes, wholly or almost wholly brown ..... *flava* Thoms.

2 (1). First tergite with strong median marginals. A pair of *prst acr* present. Scutellum somewhat flattened. Third antennal segment fully twice length of second. ♀ : jowls less than one-half greatest diameter of eye ; outer vertical present ; inter-frontalia at middle almost twice as wide as a parafrontale ; abdomen with piceous dots at the base of the setae, these dots broadly coalescing on posterior segments..... *townsendi* sp. n.

GLAUROCARA FLAVA Thomson

Thomson 1868, Eugenies Resa p. 518 ; Townsend 1931, *Ann. Mag. nat. Hist.* (10) **8** : 386 ; 1936, Man. Myiol., p. 97.

n. syn. *Oestrocharis lutescens* Villen. 1927, *Rev. Zool. Afr.* **15** : 119.

Typical locality : MAURITIUS : of *lutescens* : CAPE PROVINCE : Willowmore. In B.M. from NYASALAND : Cholo (*R. C. Wood*), 1 ♂ 1 ♀. KENYA : Sonje Valley, Laikipia Escarpment, Solai Distr. 14. ix. 19 (*T. J. Anderson*), 1 ♂.

East African and southern specimens are larger and stouter than the West African ones, and the bend is thrice as distant from *m–m* as from wing-margin (measured on a straight line extending *m* to the margin), whilst in West African specimens it is only 2–2½ times as distant. Whether these characters are sufficiently consistent to allow these two forms to be regarded as subspecies remains to be seen.

The abdominal pattern described by Villeneuve is more or less distinct in the specimens at hand but suffused and brown instead of black, and it varies considerably in specimens from the same locality, the last two segments being sometimes wholly pale, as described by Thomson, sometimes wholly brown, whilst in other specimens the dark basal band of the fourth segment is present (as described by Villeneuve).

GLAUROCARA TOWNSENDI, sp. n., ♀

Pale ferruginous ; upper part of occiput and of temples and suffused spot at the bases of the marginal setae of the second and especially third tergites suffusedly dark brown, more or less fused on third tergite, apical half (paratype) or most (type) of dorsal surface of fourth tergite suffusedly dark brown, base, hind margin and a narrow median vitta remaining pale ; third antennal segment orange, tarsi browned.—*Head* rather densely dusted yellowish-white, almost twice as high as long ; eyes bare ; frons at vertex one-quarter (0·25–0·26) head-width, moderately dilated with almost straight sides to lunula where it is almost two-fifths (0·38) head-width, interfrontalia yellowish-orange, very slightly dilated in front and behind, half as wide again at middle as a parafrontale, the latter with 6 somewhat unequal inclinate setae interspersed with 1–2 setulae and (♀) two strong proclinate setae, the anterior one at middle, and a not very strong reclinate seta not much behind the upper proclinate, in addition with very few scattered small hairs, ocellars and outer verticals rather short, inner verticals strong ; parafacialia in profile hardly a third (in anterior view fully two-thirds) width of third antennal segment, width of jowls about equal to length of third antennal segment. The latter falling short of mouth-margin by almost their own width, arista long, incrassate on basal fifth, pubescent on basal half, the longest hairs shorter than its basal diameter.

Vibrissae level with middle of mouth-margin but one-sixth of head-height above lower extremity of jowls.—*Thorax* without a pattern or conspicuous patches of dust, *prst acr* hairs in about four rows above neck increasing to about twelve at suture, 1+1–2 *acr* setae, the *prst* one strong in type but weak in paratype, 2+3+3 *dc*, 2–3 *post ia*, the first one weak or absent, *pra* very small, second supra-alar small ; 1+1 *stpl*, the anterior one much the shorter, main pteropleural seta subequal to anterior *stpl*, other setae as usual ; scutellum with strong basal and subapical marginals, the latter hardly half as distant from apex as from the basal ones, (1–)2 rather strong laterals, apicals weak and closely approximated, preapicals very weak.—*Abdomen* ovate with emarginate base and truncate, shallowly emarginate apex ; alterior segments with strong median and lateral marginals, third and fourth with a row of strong marginals, those of fourth situated at three-fifths of length of segment and followed by a row of weak setae on margin.—*Wings* subhyaline, basal half somewhat yellowish smoky, apical half conspicuously brownish (not distinct in paratype), veins testaceous and light-brown, costal spine moderately strong, r_{4+5} with a few setulae on basal node ; r_1 far exceeding level of *r–m*, which lies close to middle of discal cell, section of costa in *Sc* hardly shorter than that between the two breaks in 2 C ; bend of *m* forming a right to slightly acute angle and situated about half as far from margin of wing as from *m–m*, the genuine appendage extending over about half the distance to margin, section of *m* between apical cross-vein and *m–m* almost or fully as long as the latter, *m–m* somewhat sinuous, both apical angles of discal cell slightly acute. Lower calyptra brownish subopaque with pale brownish border and fringe. Halteres pale reddish-yellow.—*Legs* : fore tibia with 5–6 short *ad*, 2 rather strong *p* setae, and a few very small *pd* setae ; mid femur with an *a* seta at middle and 3 long *pv* on basal half, mid tibia with 2 *ad* setae near middle and two widely separated *pd* setae, between which there are 2–3 very small setae ; hind femur with a strong *v* seta near base and 3 strong *pv* on basal half, *av* surface with a strong seta at basal and apical fourths and some small setae between them, hind tibia with 2 strong *ad* and *pd* setae, the distal ones not much beyond middle and an *av* slightly beyond these, in addition with 1–2 much smaller setae on each of these surfaces.

Length 6·5–7·4 mm., of wings 6·0–7·0 mm.

Sierra Leone, 12. viii. 04, on window (*F. Smith*), ♀ type, in B.M. : Belgian Congo : Bambesa, 25. v. 38 (*P. Henrard*), ♀ paratype (Mus. Congo Belge, Tervueren).

PHYTOMYPTERINA, gen. n.

Head of both sexes dichoptic and with proclinate orbitals, half as high again as long at lunula, face strongly receding from there to mouth-margin in a broadly convex curve (♂) or an almost straight line (♀), vibrissal angles not at all projecting, entirely rounded off, mouth-margin not at all projecting ; ocellars directed forward and outward, descending frontal setae present on parafacialia, which are bare on about lower two-thirds, facial ridges wholly setulose and with well-developed setae on lower half ; clypeus strongly concave with a fine median keel, vibrissae at level of mouth-margin ; first and second

antennal segments short, third very long, much longer than arista, which is incrassate up to apex ; palpi and proboscis fully developed though rather small, the former somewhat spoon-shaped. *Thorax* with well-developed *acr* and *dc*, 1+3 *ia*, a strong *pra*, a very weak second *sa*, variable *stpl* and a rather strong main pteropleural ; prosternum and propleural depression bare ; scutellar setae as in *Glaurocara townsendi*.—*Abdomen* very short-ovate, almost subcircular, intersegmental sutures complete, setae weak and short, almost absent from disc.—*Wings* without apical cross-vein and *m–m* as in *Phytomyptera*, *c* hardly exceeding tip of r_{2+3}, r_{4+5} ending almost exactly at tip of wing, setulose up to *r–m* dorsally, but only on basal node ventrally. Lower calyptra closely adjacent to scutellum, and its inner margin somewhat sinuate as in Sturmiini, inner apical angle very pronounced, hardly rounded, apex straightly truncate except laterally.—*Legs* : fore tarsus not compressed, with normal setulae ; hind coxa bare on posterior surface and edge, hind tibia with a well-developed *pv* apical seta and a *d* and *ad* preapical (though a very small *pd* preapical is also present).

Type : *P. burtti* sp. n.

PHYTOMYPTERINA BURTTI, sp. n., ♂ ♀

Pale ferruginous with the anterior part of frons and the disc of thorax (in the type also pleurae, coxae and femora) more or less darkened rufous-brown to reddish-piceous ; antennae and palpi orange, the dorsal (anterior) edge and tip of the former somewhat infuscated.—*Head* with moderately thick yellowish-white dust on clypeus, parafacialia and, if viewed posteriorly, parafrontalia, where it is more golden, thinner, and interrupted by bare dots at the pores of the setae ; eyes practically bare ; frons at vertex well over two-fifths (0·44, ♀) or almost one-half (0·47, ♀) head-width, moderately dilated with somewhat concave sides to lunula where it is one-half (0·53, ♂) or almost three-fifths (0·58, ♀) head-width, interfrontalia gradually more strongly broadened from lunula to vertex, slightly narrower at middle than a parafrontale, the latter with about 10 inclinate setae, the three descending ones included, and the posterior 1+3 setae more or less reclinate, and a—partly double—row of much smaller inclinate setae and 2(–3) strong proclinate setae to their outer side, ocellars strong, inner verticals very strong, outer ones in male small, in female moderately strong ; parafacialia in male almost, in female fully, as wide as third antennal segment, with a few black setulae below the descending frontals, jowls almost (♂) or fully (♀) twice as wide near hind end (at widest part) as antenna. Third antennal segment 6 (♂) or 4 (♀) times as long as second, falling short of mouth-margin and level of vibrissa by half (♂) or fully (♀) its own width, twice as long (♂) or one-third as long again as arista, which is bare (pollinose), and the second segment of which is moderately elongate, 2–4 times as long as wide.—*Thorax* with moderately thin whitish dust and four narrow interrupted undusted vittae, the paramedian ones fused behind suture ; scutellum in type infuscated at base, in paratype wholly pale ; 3+3 rather weak *acr*, 3+4 rather strong *dc*, 2 strong *sptl* of which the anterior is the stronger and longer, in addition 2–3 weak *stpl* setae and some setulose hairs, in the paratype 2–3 of the additional setae only slightly weaker than the main

setae and one of them placed in front of the strongest *stpl.*—*Abdomen* without well-developed setae on first segment, second with a pair of weak median and lateral marginals, third with a row of moderately strong marginals at some distance from hind margin, fourth with a similar row at middle of length and some weak setae along margin. Fourth ventrite of male with a narrow deep lyre-shaped excision and a pair of broad lobes, which are dusted exteriorly but shiny along inner and hind margins, the latter with a single outstanding seta among the hairs.—*Wings* almost hyaline, r_1 markedly exceeding level of *r–m*, *c* and r_{2+3} ending at a considerable distance from tip of wing ; fifth vein reaching wing-margin. Lower calyptra somewhat smoky with pale ochraceous border and whitish fringe. Halteres dull reddish yellow.—*Legs* : fore tibia with 2–3 small *pd* and 2 small *p* setae and an *ad* row of 5–8 short setae ; mid femur with 1–2 *a* setae towards middle and a strong *pv* at basal fourth, mid tibia with a strong *ad*, a moderately strong *av* seta, and about 4–6 short irregular setae distributed on *p* and *pd* surfaces ; hind femur with a moderately strong *pv* seta at basal sixth, a strong *pv* at basal third and a strong *av* at apical fourth or fifth, hind tibia with 2 rather short *av* setae, a *pd* row of four moderately strong setae alternating with shorter ones, and a similar somewhat denser *ad* row.

Length 5·3–6·9 mm., of wings 4·5–5·7 mm.

TANGANYIKA : Singida, 17. vi. 50 (pupa), fly emerged 22. vi. (*E. Burtt*), ♂ type, 26. vi. 50 (fly emerged 29. vi.), 1 ♀ paratype.

The head and abdomen of the male are stuck on, and only the tibiae of one mid and hind leg are visible. The puparia were found among those of *Glossina morsitans*, and the host is unknown.

5. NEMORAEINI

Key to the Ethiopian genera of Nemoraeini

1 (2). Lower calyptra bare on dorsal surface except for a few hairs close to outer margin. Occipital dilation weak, and with only odd small hairs and usually a rather strong seta. (1)–2 proclinate and one reclinate (and somewhat outwardly curved) setae in both sexes. ♂ : sixth abdominal segment not very large and not protuberant, the posterior process of the superior forceps slightly exceeding its hind margin ..... *Chaetolydella* Villen.

2 (1). Lower calyptra haired on at least outer part of dorsal surface. Occipital dilation conspicuous, with numerous black hairs and, on antero-ventral margin, a row of rather strong setae. ♂ : without proclinate orbital setae. ..... *Nemoraea*. R.-D.

CHAETOLYDELLA Villeneuve 1916

Villeneuve 1916, 488 ; Townsend 1939 (VIII), 287.

It is remarkable that Villeneuve, who described this genus in the same year in which he discussed the African species of the genus *Nemoraea*, did not mention the other genus in either of those two papers, although they are actually so closely related that it is difficult to separate the present genus from Villeneuve's second group in the genus *Nemoraea*, especially from *N. longicornis* Villeneuve (1916 b. 20). The only definite character separating

the two genera appears to be the presence of 1–2 proclinate orbitals in the male in the present genus, and the absence of these setae in *Nemoraea*, but this character does not separate the females and has in other genera repeatedly been proved to be of slight importance. Townsend even placed the two genera in different tribes, Aphriini and Nemoraeini. Only one species of *Chaetolydella* is known.

CHAETOLYDELLA NATALENSIS Villeneuve

Villeneuve 1916, 490.

Typical localities : CAPE NATAL : Durban. TRANSVAAL. NYASALAND : Mt. Mlanje (in B.M.). In B.M. from CAPE PROVINCE : Ceres, iv. 23 (*R. E. Turner*), 1 ♀. TRANSVAAL : Johannesburg, 1·05 (*J. P. Cregoe*), 1 ♀. NATAL : Heavitree Frere, 8 mls. N. of Estcourt, ii. 13 (*D. C. M. Dibben*), 3 ♂ (Villeneuve det., one of them with Villeneuve's label "*Chaetolydella natalensis* Villen. Typ."); Frere, 8. ii. 13 (*D. Dibber*), 2 ♂ (Villeneuve det.); Willow Brook, Willow Grange, Mooi River, 13. xii. 13 (*R. C. Wroughton*), 1 ♂ (Villeneuve det.); Howick (*J. P. Cregoe*), 1 ♂. N.W. RHODESIA : Chilanga, 4000 ft., 13. x. 13, abdomen missing (*F. V. Bruce Miller*), 1 ♀. NYASALAND : Mt. Mlanje, 30. x. 13 (*S. A. Neave*), 1 ♂ paratype; Mlanje, ix. 13.–11. 14 (*J. B. Davey*), 1 ♀. NATAL : Van Reenen, Drakenberg, xi–xii. 26 (*R. E. Turner*), 3 ♂, 1 ♀; Estcourt, ix.–x. 96 (*G. A. K. Marshall*), 3 ♂; Estcourt, i. 97 (Pres. by Govt. Mus. Natal), 1 ♀. Seen from NATAL : Impenahle, xii. 15 (*E. C. Chubb*), 1 ♂; Upper Tongaat, 22. xi. 19 (*C. N. Barker*), 1 ♀. BELGIAN CONGO : Elisabethville (piège Harris), Katanga, x. 34 (*P. Quarré*), 1 ♀.

Although one of the males in the B.M. was marked "Typ." by Villeneuve, it should be noted that its locality was not mentioned in the description. It is quite likely that other specimens marked "Typ." by Villeneuve will be found, and if one of these has a locality mentioned in the description, the validity of the type specimen in the B.M., which I choose and treat as the type of the species, will undoubtedly be questioned.

The female, which has not been described, may easily be confused with those of some of the slender *Nemoraea*, especially *miranda*, *bequaerti* and *longicornis*. These have as a rule a few more hairs near the dorso-exterior margin of the basal half of the lower calyptra, and the abdomen differently coloured, almost wholly dark or almost wholly pale. The female of *natalensis* is coloured like the male with the humeral callosity and the apical part of the scutellum more or less reddish-yellow, and the abdomen reddish-yellow with a complete broad median vitta, which is about thrice as wide as the distance of the median marginals on the second segment. In the female it extends somewhat farther to the sides on the posterior segments, so that the fourth is almost wholly dark on dorsal surface.

According to Villeneuve three *post dc* only are present in this genus. However, a small but very distinct fourth *post dc* between the anterior two is present on one side in one of the males labelled "Heavitree Frere" and on both sides in one of the males labelled "Frere" and in the female. This character is thus as inconsistent as in many Dexiinae.

NEMORAEA Robineau-desvoidy 1830

Key to the Ethiopian species of Nemoraea

1 (12). Lower calyptra bare on inner three-quarters or so of dorsal surface*. Parafacialia not wider at narrowest part than third antennal segment at widest part ; width of jowls shorter than small diameter of eye, occipital dilation at least as long as high. Third antennal segment at least one-half longer than second. ♂ : the posterior process of the superior forceps freely projecting beyond the hind end of the second genital segment which is rather small (♂ of *longicornis* unknown).

2 (3). Femora, tibiae and tarsi piceous, knees narrowly testaceous. Abdomen wholly piceous-black, even in male. ♂ : inferior forceps S-shaped ..... *inocrena* Villen.

3 (2). Femora testaceous to pale ferruginous. Abdomen of male always broadly pale at sides.

4 (7). 3 *post dc*. r_{4+5} setulose on two-thirds to fully the distance from node to *r–m*. Occipital dilation weakly developed and with only one or two bristles or hairs.

5 (6). Parafacialia as wide as third antennal segment, the latter being very slender and parallel-sided, almost four times as long as wide and as second segment (measured). Abdomen with a complete black median vitta from its base almost to middle of fourth segment. Tibiae wholly pale testaceous..... *bequaerti* sp. n.

6 (5). Parafacialia about half as wide at narrowest part as third antennal segment, the latter with slightly convex sides, not quite thrice as long as wide (measured). Abdomen wholly pale ferruginous, except for a narrow interrupted median vitta from base almost to apex of second segment, and a spot at apex of fourth segment, which are piceous. Hind tibiae conspicuously browned, anterior tibiae somewhat browned at extremities.... *longicornis* Villen.

7 (4). Normally 4 *post dc*. r_{4+5} setulose not, or slightly, beyond middle of first section. Abdomen either dull rusty-red in ground-colour or with an almost complete blackish median vitta, or wholly dark.

8 (9). Abdomen almost wholly rusty-red, especially the third segment without a dark pattern or with only a linear infuscate median vitta ; pollinosity almost absent, brownish-yellow, not clearly visible anywhere if the central part of the second and third tergites is viewed at right angles. Lower calyptra browned, with brown border and fringe, wings almost evenly brownish-grey. Tibiae and tarsi wholly pale ferruginous..... *fortuna* Curr.

9 (8). Abdomen wholly dark or with a broad black median vitta, which is virtually complete even on the third segment ; pollinosity rather dense, except on apical half of the first to third segments, very conspicuous. Lower calyptra yellowish grey with concolorous border and fringe. At least the apical segments of the tarsi conspicuously browned to fuscous.

10 (11). Tarsi wholly fuscous. Mesonotum of ♂ with one pair of broad fuscous vittae, the *dc* strip being entirely or almost entirely, dark dusted, so that it unites the two narrow vittae of each side into a broad one ; of ♀ with two vittae on each side which

* Lower calyptra almost wholly hairy above. Parafacialia somewhat narrower than third antennal segment ; jowls somewhat wider than half the height of the eye. Femora yellowish-red, tibiae somewhat browned, tarsi fuscous, with reddish tinge. Lateral part of mesonotum, except for shoulders and scutellum black. Cameroons. Length 12 mm. ..... *incerta* Curran.

are more distinctly separated, the abdomen largely pale (♀ of type form, ♂) except for a rather narrow median vitta wholly black in ♀ of ssp. *mutata* Villen. Longitudinal veins of wing conspicuously fuscous suffused, basal part of wing somewhat ochraceous ..... *miranda* Villen.

11 (10). Tarsi with the base pale-ferruginous and the apical part infuscate. Mesonotum with two pairs of linear black vittae on each side which are separated by a broad greyish-white-dusted vitta on the *dc* strip. Longitudinal veins suffused only somewhat brownish on apical posterior half, but the antero-basal half of the wing membrane everywhere infuscate..... *infoederata* Villen.

12 (1) Lower calyptra hairy on the whole posterior width of its dorsal surface. Parafacialia wider at narrowest part than third antennal segment at widest part* ; jowls about as wide as small diameter of eye, occipital dilation higher than long. Third antennal segment only slightly longer than second. ♂ : the posterior process of the superior forceps adpressed to, and not nearly reaching hind end of second genital segment.

13 (14). Second (and third) abdominal segment with a pair of discals. Fore margin of wings ochraceous from base to apex of *sc* (or wholly fuscous : ssp. *semiobscura* Villen.). ♀ : palpi strongly clavate, virtually as wide at widest part as third antennal segment. Second and third abdominal segments glossy without any dust except for some very thin pollinosity at the extreme base, fourth thinly dusted ; piceous median spots broadened behind and usually forming a dark hind margin on the third (and often second) segment..... *discoidalis* Villen.

14 (13). Second abdominal segment without discals, third sometimes with a pair of discals.

15 (16). Basal half of hind tibia with 2–3 outstanding and quite strong setae among the *ad* setulae. Parafrontalia thinly dusted, appearing blackish. Second tergite with a pair of strong median marginals, third often with a pair of median discals. Vibrissae at mouth-margin or very slightly above it (by about the width of their pore). ♂ : superior forceps simple at apex ; inferior forceps more slender, especially in apical part, which is more pointed ..... *rubellana* Villen.

16 (15). Basal half of hind tibia with only fine half-adpressed *ad* setulae. Parafrontalia densely dusted. Second tergite without median marginals (except sometimes in Abyssinian specimens). Vibrissae as a rule lying conspicuously above mouth-margin, the distance being about equal to the greatest width of the palpi. Abdomen rather conspicuously pollinose, the dust being bright silver-white. Wings not or only slightly browned along the veins. ♂ : superior forceps with a small apical excision, the apex thus double ; inferior forceps stouter, more rounded at apex ..... *capensis* R.-D.

NEMORAEA MOERENS Villeneuve

Villeneuve 1916 b, 201 ; Curran 1936, 12.

Typical locality : W. NYASA (♂ type and paratype in B.M.). Seen from TANGANYIKA : Amani, 3000 ft., 1956 (*J. G. Halcrow*), 1 ♀.

* See footnote p. 360.

NEMORAEA BEQUAERTI, sp. n., ♂ ♀

Dorsal surface of head and disc of mesonotum fuscous-black, anterior and lower part of the head, palpi, proboscis and legs, except tarsi, pale testaceous, pleurae, shoulders, apical third or more of scutellum and the abdomen pale ferruginous, the latter with a moderately narrow fuscous-black median vitta, which occupies a quarter to sixth of the width of the segments, and is widest at base of second and especially on the first segment ; thorax rather densely dusted greyish-white, with linear fuscous-black paramedian and moderately narrow outer vittae ; tarsi piceous-black with piceous-brown fifth segments ; third antennal segment of female slightly infuscated in apical half.—*Head* rather densely dusted whitish-grey, the testaceous parts densely dusted yellowish-white, at vibrissal angle, which is obtuse or gently rounded, less than three-quarters (0·69–0·73) as long as at lunula, facial profile straight or slightly convex below, frontal profile slightly convex ; eyes with moderately dense and long, in female shorter, hair ; frons at vertex in male more than one-sixth (0·17), in female one-fifth, head-width, rather strongly dilated with somewhat concave (♂) or straight (♀) sides to lunula where it is almost (♂) or slightly over (♀) two-fifths head-width, interfrontalia rufous-brown, about half as wide at middle as a parafrontale, with 6–8 (♂) or 6 (♀) inclinate setae, the first and last of which are weak, and in female 2 proclinate setae and a praevertical, in male with 2–3 setulae between the inclinate setae and level of anterior ocellus, outer part in male with very fine small hairs, which are dark behind but pale golden in front, in female almost bare ; ocellars weak (♂) or hairlike (♀), inner verticals very strong, outer verticals indistinct ; parafacialia bare, jowls fully twice as wide as third antennal segment, with 1–2 stronger setulae above middle of lower margin, otherwise bare, except for the peristomal row, facial ridges setulose on lower third to two fifths. Third antennal segment almost reaching mouth-margin, not much shorter than arista, which is slender and only slightly thickened at base, very finely short-pubescent (hardly more than pollinose).—*Thorax* with the paramedian vitta somewhat diverging and reaching level of first *post dc*, a vestigial linear median vitta extending from about suture to middle of scutellum, outer vittae complete, extending laterally from the *dc* to the inner *ph* but only two-thirds the width to the *post ia* ; 3 +2–3 *acr*, 3 +3 *dc*, 2 *ph*, 0 +3 *ia*, which are successively stronger, *pra* subequal to second *npl* and second *sa*, first *sa* very strong, third strong ; anterior mesopleural weak, 1 +1 *stpl* ; scutellum with 1 (paratype) or 2 (type) strong laterals, rather weak decussate apicals and distinct (type) or indistinct (paratype) preapicals.—*Abdomen* oblong-ovate, two-thirds (0·70 ♂, 0·57 ♀) longer than wide, first segment with strong lateral, but without median, marginals, second with strong median and lateral marginals, third with a row of strong marginals consisting of four pairs and continued ventrally by a row of weak setae, fourth with a row of strong discals and marginals, the median pair of each row slightly shifted forward ; first genital segment of male with about 6 erect setae on disc.—*Wings* greyish subhyaline, yellowish smoky at base in *Sc*, R_1 and along the longitudinal veins, more strongly brownish smoky at apex of r_{2+3}, along *m–m*, apical cross-veins, the apical parts of the longitudinal veins, and in paratype in the tip of R_3 ; apical cross-vein

strongly concave outwardly, its apical part almost parallel with, and close to, tip of r_{4+5} for a considerable distance, bend acute with a genuine appendage, *m–m* somewhat outwardly concave (♂) or straight (♀). Calyptrae brownish-grey subhyaline with pale brownish-grey border and whitish fringe. Halteres pale yellowish.—*Legs* wholly pale except for the tarsi ; fore tibia with a row of small *ad* and *pd* setae and a stronger *pv* at apical third ; mid femur with 3 erect *pv* setae on basal half and some stronger decumbent *av* and *pv* setulae towards apex, mid tibia with 2 strong (and 0–2 very small) *ad* setae, 2 rather short *pd*, 1 rather strong *p* and 1 *av* seta ; hind femur with about 7 rather unequal *av* setae, one at apical fourth or fifth being the strongest, and 3–4 strong to very strong *pv* setae on basal half, hind tibia with 3–4 successively stronger *pd* and *ad* setae, the *ad* ones forming part of a row of stronger setulae, and with 2 *av* setae.

Length 8·7–10·3 mm., of wing 7·4–8·0 mm.

Belgian Congo : near Elisabethville, river Kafubu, x. 32 (*M. Bequaert*), ♂ type ; near Elisabethville, river Kimilolo, 10. x. 33 (*M. Bequaert*), 1 ♀ paratype (returned to Dr M. Bequaert). There is in the B.M. a female from N. Nigeria : Kaduna, 9. xii. 10 (*J. J. Simpson*), which is extremely similar, but which has the pleura largely fuscous, the scutellum almost wholly dark, the abdominal vitta somewhat broader, the wing veins not suffused, 3 *ad* setae on the mid tibia and the marginal row of the fourth abdominal segment not continued on the lateral surface. Another female from Nigeria : Ilorin, 9. xii. 36 (*F. D. Golding*) is similar but has the dorsal surface of the abdomen wholly infuscated, the wings as in the type, the tibiae browned, and only 2 *ad* setae on the mid tibia. A smaller female (length 7·7 mm., wings 5·8 mm.) from Gold Coast (*W. P. Lowe*) has the scutellum entirely dark and tallies otherwise with the Ilorin specimen. These three specimens belong probably to *bequaerti* or a closely related species, but it is not impossible that the last two specimens are in reality *Chaetolydella natalensis*, the female of which would be more or less indistinguishable from dark females of *bequaerti*. However, so far no males of *Chaetolydella* have been found in West Africa, and it is, therefore, unlikely that the genus occurs in Nigeria and the Gold Coast.

NEMORAEA LONGICORNIS Villeneuve

Villeneuve 1916 b, 201 ; Curran 1936, 12, 13.

Typical locality : S. Nigeria : Oshogbo (♀ type, ♀ paratype in B.M.). Recorded from N.W. Tanganyika.

NEMORAEA FORTUNA Curran

Curran 1936, 12, 14.

Typical localities : Belgian Congo : Tshibinda ; Burunga (paratype in B.M.). The descriptions give Tshibinda " Tanganyika " as locality owing to a mistake made at the Commonwealth Institute of Entomology in labelling Tshibinda material, some of which was labelled Tanganyika, Tshibinda, and some correctly Belgian Congo, Tshibinda. The following specimens in the B.M., one of them from the type locality and date, fit the description. Belgian Congo : Tshibinda, 21–27. viii. 31 (*J. Ogilvie*), 1 ♀. Uganda : E. Ruwenzori,

6–13,000 ft., 15. i. 06 (*Hon. G. Legge* and *A. F. R. Wollaston*), 1 ♀; Bwamba Pass, West side, 5500–7500 ft. (*F. W. Edwards*), 1 ♀; Namwamba Valley, 6500 ft. (*F. W. Edwards*), 1 ♂, 1 ♀. KENYA: Mogorr. River, 1913 (*A. O. Luckman*), 3 ♂, 1 ♀.

NEMORAEA MIRANDA Villeneuve

Villeneuve 1916 b, 200.

n. syn. *Nemoraea intacta* Villeneuve 1916 b, 201.

Typical localities: BELGIAN CONGO: Lasse; Walskale. GOLD COAST: Aburi (in B.M., with a blue Villeneuve label: "*Nemoraea miranda* Typ. Villen., Dr. Villeneuve det."). As has been pointed out above p. 000) more than one specimen has frequently been labelled "Typ." by Villeneuve, and, in case this should apply to the present species, the Aburi specimen in the B.M. is herewith chosen as the lectotype of *Nemoraea miranda* Villen. Of the two female forms described and named by Villeneuve the pale one must for geographical reasons belong to *miranda*, and var. *intacta* is therefore a synonym of this species. Its typical locality is S. NIGERIA: Oshogbo (type and paratype in B.M.). Also in B.M. from GOLD COAST: Obuasi, Ashanti, 16. vii., 10. viii. 07, 19. and 24. xi. 07 (*W. M. Graham*). SIERRA LEONE: Yiama 1924 (*D. B. Blacklock*). Seen from BELGIAN CONGO: Bambesa, 14. v. 38, 9. v. 38 (*C. D. Henrard*), 1 ♀, 1 ♂.

NEMORAEA MIRANDA F. MUTATA Villeneuve

Villeneuve 1916 b, 201; Curran 1936, 12, 14.

Typical locality: UGANDA: Entebbe. Recorded (as *miranda*) from: Entebbe and Kampala. None of these specimens has yet been returned to the Commonwealth Institute of Entomology. The females are easily distinguished from those of the type form by entirely piceous-black ground-colour of the abdomen, but the males cannot always be distinguished, they have apparently as a rule a broader abdominal median vitta. In B.M. from UGANDA: N.W. shores of Victoria Nyanza, 3800–3900 ft., 12–15. ix. 11 (*S. A. Neave*), 1 ♂. KENYA: Jinja, x. 30 (*V. S. L. van Someren*), 2 ♂, 3 ♀. Seen from UGANDA: Kampala, 8. xii. 16 (*C. C. Gowdey*), 1 ♂; 20. iii. 26 (*R. Hargreaves*), 1 ♂; Bwamba Valley, Ruwenzori, vii. 45 (*G. R. C. van Someren*), 1 ♂; Bwamba, vi. 48 (*van Someren*, 1 ♀. SUDAN: N. Jebel Murra, Killing, 7000 ft., 29. vi. 32 (*M. Steele*), 1 ♂ without abdomen. IVORY COAST: Abengourou, 27. v. 47, ex pupa of *Diacrisia* sp. (*H. Alibert*), 1 ♀. BELGIAN CONGO: Tukwo, vii. 37 (*J. Vrijdagh*); Bambesa, Uele. 20. x. 33 (*J. Leroy*), 5. iv. 37 (*J. Vrijdagh*).

The fact that in a West African female the ground-colour of the abdomen is entirely piceous-black as in East African specimens might be taken as an indication of specific rather than racial diversity, *miranda* s. str. being distributed both in East and West Africa. However, the male genitalia of the type of *miranda* from Aburi do not show any marked differences from those of specimens from Lake Victoria, Kampala and Jinja. It seems therefore that the *mutata*-form occurs on both sides of the continent, replacing the typical form apparently entirely in the East, but being much rarer than that

from the West. As long as a larger material is not available, this way of interpreting the facts seems to be the only possible one. The Bwamba ♀ has three *post dc* only, and the occipital dilation almost absent and indicated by a few hairs only ; the shoulders, and abdomen are wholly dark. Except for its coloration it is hardly distinguishable from *Chaetolydella natalensis* Villen.

NEMORAEA INFOEDERATA Villeneuve

Villeneuve 1916, 199 ; Curran 1936, 13, 15.

Typical localities : UGANDA : Ruwenzori. KENYA : E. side of Forest of the Aberdare Mts. Recorded from Ruwenzori (*Curran*). Both the two typical males from the Aberdare Mts. and the female mentioned by Curran belong to the Commonwealth Institute of Entomology, but have not yet been returned. In B.M. from UGANDA : Namwamba Valley, Ruwenzori, 6500 ft. (*F.W.E.*), 1 ♂, 1 ♀ ; Bwamba Valley, vii. 45 and vii.–viii. 46 (*G. R. C. van Someren*), 1 ♂, 1 ♀ (♀ returned to Dr. van Emden). Seen from : BELGIAN CONGO : Tshibinda, Kiou, xii. 27 (*Ch. Seydel*), 1 ♂ (Mus. Tervueren) ; Bambesa, 9. v. 38 (*P. Henrard*), 1 ♀ (Mus. Tervueren).

The two Congo specimens are considerably larger, especially the male (13 mm.), and the dark coloration of the abdomen is less extended, especially in the female. The smallest specimen is only 9 mm. long, but the original description mentions almost the same range of variation in size, 9–12·5 mm.

NEMORAEA DISCOIDALIS Villeneuve

Villeneuve 1916, 198 ; Curran 1936, 14.

Typical localities : UGANDA, Entebbe ; Tero (" Jero ") Forest ; Ruwenzori. Recorded from : Kampala and Nkokonjera (" Nkokonpira "). In B.M. : UGANDA : Tero Forest (" Entebbe " crossed out), 5. vii. 12 (*C. C. Gowdey*), 1 ♀, labelled " *Nemoraea discoidalis* Villen. Typ." by Dr. Villeneuve. In case that several specimens have been marked " Typ." by Dr Villeneuve this female is herewith designated as the lectotype of *discoidalis* ; Tero Forest (*C. C. Gowdey*), 8. vii. 12, 1 ♀, 9. vii. 12, 1 ♀, 5. vii. 12, 3 ♀, all det. by Villeneuve and presented to the B.M. by the Imperial Institute of Entomology in 1919 and 1950, presumably paratypes (the error Jero for Tero Forest is due to an incorrect interpretation of the English handwriting on these labels) ; Entebbe, 21. viii. 11 (*C. C. Gowdey*), 1 ♂, 1 ♀ : Kigezi, ii. 28 (*G. D. H. Carpenter*), 1 ♀. Seen from UGANDA : Bwamba Valley, vii. 21 (*H. Hargreaves*), 1 ♀. BELGIAN CONGO : Dingila, Uele, 1. vii. 33 (*J. V. Leroy*), 1 ♂ ; Bambesa, xii. 34 (*J. V. Leroy*), 1 ♂, 15. x. 33 ; Pawa 1939 (*Radna*) (1 ♂ Congo specimen in Mus. Tervueren, two presented to B.M.). The specimens mentioned by Curran have not yet been returned to the Commonwealth Institute of Entomology. In the typical form the wings are orange from base to apex of *sc*, the antennae ferruginous with the third segment sometimes more or less browned, the jowls of the male half as high as the eye, and the frontals not descending much below middle level of the second antennal segment.

NEMORAEA DISCOIDALIS SEMIOBSCURA Villeneuve

Villeneuve 1916, 199.

Typical locality : KENYA : E. side of edge of Forest of the Aberdare Mts. The type has not yet been returned to the Commonwealth Institute of Entomology. In B.M. from KENYA : Naivasha, x. 30 (*V. G. L. van Someren*), 1 ♂. I am much obliged to Dr. van Someren for this specimen as it has not been possible so far to obtain the type. This is apparently a geographical form, as assumed by Villeneuve. The base of the wings is brownish, not orange, the third antennal segment fuscous, the arista fuscous with second segment longer, the jowls only two-fifths the height of the eye, and the frontal setae descending to the extreme base of the third antennal segment.

NEMORAEA RUBELLANA Villeneuve

N. rubellana Villeneuve 1913, 28.
n. syn. *N. completa* Curran, 1936, 16.
n. syn. *N. incerta* Curran 1936, 17.

Typical localities : UGANDA : Lake George (type in B.M.) ; of *completa* : UGANDA : Entebbe (type in B.M.) ; S. RHODESIA : Chirinda ; of *incerta* : CAMEROUNS : Eden. Recorded from KENYA : Kabete ; Narok, Mazai Reserve.

In B.M. from : UGANDA : Mpanga Forest, Ruwenzori, 4000 ft. (*F. E. Edwards*), 1 ♂, forma a ; Mobuku River, Ruwenzori, 4000 ft., 20. i. 35 (*F. W. Edwards*), 1 ♂ ; Kalinzu Forest (*T. H. E. Jackson*), 1 ♂, forma *a* ; Munyongo, 2. ii. 30 (*G. L. R. Hancock*), 1 ♂, forma a ; Bwamba Country, 1938 (*J. O. Harper*), 1 ♀, forma b ; W. Ankole, 4500–5000 ft., 10–14. x. 11 (*S. A. Neave*), 2 ♂, forma a, 1 ♂, forma d ; Siroko R. nr. W. foot of Mt. Elgon, 3600 ft., 12–14. viii. 11 (*S. A. Neave*), 1 ♂, forma a ; Mbanga Forest, Toro, 4800 ft., 13–23. xi. (*S. A. Neave*), 1 ♀, forma b ; Daro (Durro) Forest, Toro, 4000–4500 ft., 25–29. x. 11 (*S. A. Neave*), 1 ♂, forma b. ABYSSINIA : Higo Samula, 30. x. 11 (*R. J. Stordy*), 1 ♂, 2 ♀, forma d ; Das, 21. x. 11 (*R. J. Stordy*), 1 ♀, forma d. KENYA : (*J. R. Roberts*), 1 ♂, forma a, 6 ♀, forma d, 11 ♀, forma c ; Masak River Narokl. iv. 15, 5600 ft. (*O. Luckman*), 3 ♂, forma a, 2 ♂, forma d ; 26. iii. 14, 1 ♂, forma a ; M'bagoris Village, edge of Kenia Forest, 5000 ft., 12. ii. 11 (*T. J. Anderson*), 1 ♂, forma d ; Nairobi, vii. 30 (*V. G. L. van Someren*), 1 ♂, forma a, 1 ♀, forma d, 3 ♀, forma c ; Meru, vii. 43 (*V. G. L. van Someren*), 1 ♂, forma a, 1 ♂, forma c, 1 ♂, forma d ; Malo, Mombasa, 7000 ft. (*A. J. Cholmley*), 1 ♂, forma d ; Jinja, ix. 28 (*V. G. L. van Someren*), 2 ♂, forma a, x. 30, 1 ♂, forma a ; BELGIAN CONGO : Dibolo, Katanga, 24–27. vii. 31 (*J. Ogilvie*), 1 ♀, forma b (trans. ad a). TANGANYIKA : Morogoro, 15. x. 17 (*A. Loveridge*), 1 ♂, forma a. S. RHODESIA : Chirinda Forest, Gaza Ld., iii. 07 (*D. Odendaal*), 2 ♂, forma a, 12 ♀, forma b, 3 ♂, 4 ♀, forma d ; 25. iii.–2. v. 07 (*F. M. Swynnerton*), 1 ♂, 1 ♀, forma d, 1 ♀, forma b (but with one strong discal on the third tergite). CAPE PROVINCE : Ceras, xi. 20 (*R. E. Turner*), 1 ♂, forma a. Seen from KENYA : Oldongo Orok, Siria, 5900 ft., 31. xii. 32 (*E. A. Lewis*), 1 ♂, forma a ; Naivasha, vii. 37 (*H. J. A. Turner*), 1 ♂, forma d ; Kiamba, 15. vii. 32, on coffee (*H. C. James*), 1 ♀, forma d ; Ruizu, 16. vi. 32, on coffee (*H. C. James*), 1 ♀, forma d ; Scott Agric. Lab.,

8. ii. 49, ex *Laphygma exempta* (*R. H. Le Pelley*), 3 ♂, 2 ♀, forma c, d ; Ngong, ix. 35 (*V. G. L. van Someren*), 1 ♂, forma d ; Nyeri, x. 48 (*V. G. L. van Someren*), 1 ♀, forma d ; vi. 49, 2 ♀, forma d, 1 ♀, forma c ; Nairobi Gdns., 15. ix. 32 (*C. B. Symes*), ? ♀, forma c and d. BELGIAN CONGO : Xatanga, La Mofla, 13. iii. 25 (*Ch. Seydel*), 1 ♂, forma a (abdominal vitta rather broad) ; Bambesa, 11. v. 38 (*P. Henrard*), ♂, forma a (abdominal vitta rather broad) ; Sankura, Louakala, iii. 25 (*J. Ghenquière*), 1 ♀, forma a ; Elisabethville, 4. i. 31 (*M. Bequaert*), 1 ♀, forma b ; ii. 31, 1 ♂, forma c ; 1925, 1 ♀, forma c ; Elisabethville x.–xi. 34 (*Richard*), 1 ♂, forma c ; Bambesa, Uele, 30. x. 33 (*J. Leroy*), 1 ♀, forma a. FRENCH CAMEROONS : Yaounde ?, 2300 ft., 1936 (*van Zwaluwenburg and McGough*), 1 ♂, forma c.

This species is subject to considerable variation, and extreme specimens appear like entirely separate species. As an average smaller forms of 8·5–13 mm. length have the wings orange and not infuscate at base (up to apex of *r*), hardly browned from there towards apex, and the third tergite with (forma d) or without (forma c) a pair of discals ; this form is common in Kenya where the type form is rarer, it also occurs in Abyssinia and S. Rhodesia : Chirinda Forest. Its smallest specimens with a rather broad abdominal vitta, rather conspicuous whitish dust at the base of the tergites, and with a pair of discals on the third tergite, appear quite distinct from the larger type form with strongly infuscate base and longitudinal veins of the wing, no discals on the third tergite, almost undusted abdomen, with a median vitta normally narrow (forma a) but sometimes absent, more especially in females (forma b). The type form, which is 10·5–13 mm. long, occurs together with the small form in the Chirinda Forest, much less frequently than the small form in Kenya, and much more frequently in Uganda. The male genitalia of these forms are indistinguishable.

NEMORAEA CAPENSIS R.-D.

syn. *N. rufipes* Macquart 1843, 54, pl. 5, f. 8.

Typical localities of *capensis* and *rufipes* : Cape. Recorded from RHODESIA. NYASALAND. BELGIAN CONGO. ABYSSINIA. TRANSVAAL : Pretoria.

In B.M. from : N. E. RHODESIA : nr. mouth of Lusnagazi River, 1–3. xi. 10 (*S. A. Neave*), 1 ♂ (Villeneuve det.). N. RHODESIA : Broken Hill, 26. v. 12 (*E. A. Copeman*), 1 ♀. N.W. RHODESIA : Xasempa Dist., 1907 (*A. Yale Massey*), 1 ♂ ; nr. Chilanga, 19. ix. 13, on damp mud in stream bed (*R. C. Wood*), 1 ♂. S. RHODESIA : Gatooma, ii. 30, nr. 2591 (*A. Cuthbertson*), 1 ♂. NYASALAND : Marimba, 1. i. 11 (*J. E. S. Old*), 1 ♀ ; Kotakota (*J. E. S. Old*), 1 ♂ ; Malosa R., Mt. Mlanje, 8. x. 13 (*S. A. Neave*), 3 ♀ (Villeneuve det.) ; Mt. Mlanje, 28. viii. 13 (*S. A. Neave*), 1 ♀ (Villeneuve det.) ; Port Herald, wet season 1912-13 (*J. E. S. Old*), 2 ♂ ; Blantyre, v. 10 (*J. E. S. Old*), 1 ♀ ; Lingadzi nr. Domira Bay, 1700 ft., 18. xii. 14, on baobab (*W. A. Lamborn*), 3 ♀ ; Fort Johnston, 1500 ft., 14. iii. 06 (*E. L. Rhoades*), 1 ♀ ; Cholo (*R. C. Wood*), 1 ♂, 1 ♀ ; Maiwa, 12, 28. x. 28 (*W. A. Lamborn*), 1 ♀. TRANSVAAL : Lobatsi, 16. iii. 34 (*J. Ogilvie*), 1 ♀. S. ABYSSINIA : Gau, 20. x. 11 (*R. J. Stordy*), 1 ♂ (second tergite with a pair of distinct marginals). Seen from TRANSVAAL : Pretoria, 22. iv. 17 and iii. 42 (*H. K. Munro*), ex larva of *Laphygma exempta* ;

Thabazimbi, 16. ii. 51 (*Mr Kreutex*). BELGIAN CONGO: Elisabethville, Kasepa, 23. ix. 23 (*M. Bequaert*), 1 ♂. ABYSSINIA: Dora River, 4700 ft., 12. ii. 29 (*R. E. Cheesman*), 1 ♂.

6. ACEMYINI

Mesnil (1939) places this group, which parasitizes locusts and grasshoppers, in Phasiinae and Rubtzov's (1951) studies of the male genitalia confirm this position. In a classificatory key, however, this group can hardly be fitted into the Phasiinae, and only with some difficulty into any other subfamily. Not only have the members of this group frequently a setulose prosternum but they also often have three *post ia* and, at least in the female, one or two distinct reclinate orbital setae. The *pv* spur of the hind tibia is absent, small, or well developed, the latter being the case in *Acemya acuticornis* Meig. and *A. masuria* Walk., in which the prosternum is bare, whilst in *Ceracia dentata* Coq., *majorina* Wulp and *confundens* Tns. (which all have a setulose prosternum) the *pv* spur is absent. It is hardly possible to conclude from these facts that the aggregate is polyphyletic, for at least one Ethiopian species connects the two groups, having a setulose prosternum *and* a distinct (though small) *pv* spur. I have before me a long series of a *Craspedothrix* (Siphonini) or related genus from Nyasaland, which has a similar small tooth-like spine at the tip of the third antennal segment. As the prosternum is bare, it might easily be thought to belong here, but the black setulae of the occiput and the distinctive apical and subapical scutellars show clearly that it is related to *Actia*. Its lower prostigmal is curved downward as in sbg. *Strobliomyia*.

CERACIA Rondani 1865

Prosternum setose. Reclinate frontal setae distinct. Male dichoptic, with proclinate orbitals like the female. Hind trochanter with a very long evenly curved *v* seta. Node at base of r_{4+5} with only one seta.

Key to the Ethiopian species of Ceracia

1 (4). 3 well-developed *stpl.* 3 *prst acr*, the hindmost one close to suture. Hind tibia without a *pv* apical seta (not known of type of *uncinata*). Third antennal segment thrice length of second. Spiracular process of puparium long, the black part more than one-sixth length of rest of puparium (? *uncinata*) 4–5 mm.

2 (3). Abdominal segments with shining black hind margins. Second antennal segment, (trochanters?) and tibiae pale ferruginous, the latter darkened at extremities ..... *uncinata* Thoms.

3 (2). Abdominal segments wholly pale dusted but in certain directions appearing largely fuscous on half their width. Trochanters and tibiae fuscous-black, the former with somewhat paler edges ..... *nomadacridis* sp. n.

4 (1). 2 *stpl.* 2 *prst dc*, the hindmost one somewhat anterior to level of last *prst dc*. Hind tibia with a small but distinct *pv* apical seta. Third antennal segment less than twice length of second. R_4 closed in margin. 6–7 mm. Spiracular process of puparium short, slightly wider than long, cleft to middle, about 1/10 length of rest of puparium ..... *burtti* sp. n.

CERACIA UNCINATA Thomson

Myobia uncinata Thomson 1869, Eugenies Resa, p. 526.

Type locality : S. AFRICA : Cape of Good Hope.

Two specimens in poor condition with puparia from SENEGAL : Bambey, 30. i. 40 (*J. Risbec*) in the B.M., fit the description fairly well, but they are too incomplete and too poorly preserved to permit a definite identification. Moreover, the widely separated localities make it probable that a different species is involved.

CERACIA NOMADACRIDIS, sp. n., ♂ ♀

Fuscous-black, moderately densely dusted pale-grey, in places with a yellowish to slightly brownish tinge, paramedian vittae of thorax linear and somewhat diverging to suture, somewhat broader at suture and tapering off to level of first *post dc*, paramedian vittae reduced to a spot between *ph* and *prst* and a narrow *post* vitta between the *dc* and *ia* ; abdomen in posterior view wholly pale-dusted with black dots at the base of the hairs and setae, in a more dorsal view with black, somewhat brassy, broad hind margins, the anterior boundary of which is suffused, and in a lateral view appearing pale-dusted on the far side and almost undusted on the near side ; palpi testaceous, basal antennal segments dull ferruginous, at least at margins.—*Head* rather densely dusted pale-grey, the dust on parafrontalia somewhat brownish, face almost silver-white ; eyes almost bare ; frons at vertex almost two-fifths 0·37–0·40) head-width, slightly dilated with almost straight sides to lunula where it is more than two-fifths (0·41–0·45, but in one Mazaboka male 0·48) head-width, interfrontalia parallel-sided or somewhat narrowed to lunula, divided into two linear arms behind by the broad frontal triangle, 1/3–1/2 as wide at middle as a parafrontale, the latter with 4–5 inclinate setae, the first of which is descending, one reclinate, a praevertical, which is directed more backward than outward, and 3–4 proclinate setae, in addition with a few setulose black hairs, ocellars moderately strong and strongly diverging, inner verticals strong, outer ones rather short though very distinct ; parafacialia at middle hardly half, jowls fully, as wide as third antennal segment. The latter two-and-a-half times as long as wide, falling short of mouth margin by half its own width ; arista bare (pollinose), thickened in more than basal third.—*Thorax* with 3 +3 *acr*, 3 +3 *dc*, 1 +3 *ia*, the first *post* one and the outer *ph* rather small but very distinct, *pra* rather short ; 2 weak anterior mesopleurals, lower *stpl* somewhat nearer to anterior than to posterior one ; scutellum with strong basal divergent subapical and decussate apical setae ; preapicals indistinct.—*Abdomen* oblong-ovate, dorsal basal excavation normally reaching hind margin of first segment ; the latter without or with weak median marginals, second segment with strong median and lateral marginals, third with a row of strong marginals of three dorsal pairs (and some weaker setae ventrally), fourth with a row of strong marginals.—*Wings* subhyaline with brown or testaceous veins ; r_{4+5} at base both dorsally and ventrally with a rather strong setula, veins otherwise bare, r_1 slightly exceeding level of *r–m* which lies at middle of discal cell, *m–m* hardly concave and slightly oblique, reaching *m* slightly more than halfway between *r–m* and bend, the

latter broadly obtuse and somewhat rounded, apical cross-vein slightly concave outwardly, especially just beyond bend, R_5 almost or quite closed in margin. Calyptrae opaque, whitish-grey with whitish border and fringe. Halteres dull reddish-yellow.—*Legs* wholly dark with only the edges of the trochanters and sometimes the extreme tips of the femora somewhat translucent ferruginous ; fore tibia with a row of small *ad* setae which are strongest at basal third, and (1–) 2 *p* setae ; mid femur with 1–2 *a* setae near middle, 1(–2) *av* close to base, 2–3 *pv* in basal third and a *p* and *pd* preapical, mid tibia with 2 *p*, 1 *av* and 1 strong *ad* seta, sometimes 2 *ad* setulae beyond the seta and often on mid tibia a *pd* seta present ; hind femur with 1–2 *av* setae at each basal and apical fourths, the most distal one the strongest, 2 long and strong *v* setae on basal half and a *pv* near base, hind tibia with 2–3 rather small *av* setae, 2 strong *pd* alternating with 2–3 small ones and 2 strong *ad* interspersed in a row of 5–6 small setae.

Length 4·0–5·2 mm., of wings 3·3–4·3 mm.

S. Tanganyika : Nkamba-Kati, C. Rukwé dist., 29. xii. 53, from locust [*Nomadacris septemfasciata*], 15. xii, pupated 16. xii. 53 (*R. F. Chapman*), ♂ type, 1 ♂, 1 ♀ paratypes, 8 puparia. Zanzibar : Pemba Is., 15–23. ix. 24 (*H. J. Snell*), 1 ♂ paratype. N. Rhodesia : Mazabuka, 7. xii. 34, bred from Red Locust [*Nomadacris septemfasciata*], collected 27. xi. 34 (*W. Allan*), 2 ♂, 7 ♀ paratypes.

CERACIA BURTTI, sp. n., ♀

Coloration and pollinosity as in *nomadacridis*, but the paramedian thoracic vittae hardly diverging to suture and the abdominal segments in dorsal view with less definite dark hind margins ; second antennal segment suffusedly pale ferruginous on apical half.—*Head* dusted as in *nomadacridis* ; eyes almost bare ; frons at vertex more than one-third (0·35–0·36) head-width, slightly dilated with almost straight sides to lunula, where it is two-fifths (0·40–0·42) head-width, interfrontalia very slightly dilated anteriorly, somewhat more posteriorly, at middle two-thirds the width of a parafrontale, the latter with 5–6 inclinate and 2 reclinate setae, 1–2 of the former descending on parafacialia, and with 2–4 proclinate setae, with only 1–2 proclinate black hairs, ocellars moderately strong, inner verticals very strong, outer ones absent ; parafacialia at middle two-thirds, jowls almost twice, width of third antennal segment. The latter not quite twice as long as wide and as second antennal segment, falling short of mouth-margin by well over its own width ; arista bare (pollinose), more than twice as long as third antennal segment, somewhat thickened in basal quarter.—*Thorax* with 2 +3 *acr*, 2 +3 *dc*, 0 +3 *ia*, the first *post* one, the outer *ph* and the *pra* weak ; 2 weak anterior mesopleurals ; scutellum with strong basal and decussate apical and very strong divergent subapical setae.—*Abdomen*, *wings* calyptrae and halteres as described for *nomadacridis*, the abdominal setae very straight and *m–m* slightly sinuous.—*Legs* as described for *nomadacridis*, but mid tibia with 2 strong *ad* setae, the distal one much the stronger and hind tibia with (1–)2 *av*, 3–4 successively stronger *ad* and *pd*, the *ad* ones alternating with, and followed distally by, small setae.

Length 5·8–6·7 mm., of wings 4·6–5·0 mm.

TANGANYIKA : Old Shinyanga, 19. x. 51 adult emerged (*E. Burtt*), ♀ type. NATAL : Weenen, xii. 23 (*H. P. Thomasset*), 2 ♀ paratypes.

7. GERMARIINI

I have seen no species of this group in my material from the Ethiopian region, but *Platyschineria cuthbertsoni* Villen., according to its author appears to be related to *Germaria* R.-D., though having proclinate ocellars. However, the latter character is also found in the European *Atractochaeta angustata* Zett. which is included by Mesnil in Germariini. *Gymnoglossa munroi* Curr. also would seem to belong here. *P. cuthbertsoni* and *G. munroi* have certain similar features and may even be congeneric though certainly not conspecific. The characters appear to be very similar to those of *Gymnoglossa* Mik, but in the absence of a specimen of *G. transsylvanica* for comparison this cannot be decided. At any rate the incrassate and geniculate arista and the broad frons of the male in all these forms would not fit Mesnil's definition of the Aphriina, in which he places *Gymnoglossa*.

The two Ethiopian species, both of which have R_5 petiolate, proclinate ocellars and even the first segment of the arista elongate, can be distinguished as follows.

1 (2). Palpi entirely absent. r_{4+5} setulose to beyond *r–m* ; R_5 long-petiolate. Second and third abdominal segments each with a pair of discals. ♂ : frons more than a third head-width (one-fourth wider than either side) ; jowls not quite half as high as the eye ; third antennal segment strongly angulate at base ..... **Gymnoglossa munroi* Curr.

2 (1). Palpi of half the normal length, slender. r_{4+5} with only 6–7 setulae at base ; R_5 short petiolate (?). Abdomen without discal setae. ♂ : frons four-fifths width of the head ; jowls four-fifths as high as the eye ; third antennal segment not angulate at the base ..... **Platyschineria cuthbertsoni* Villen.

GYMNOGLOSSA MUNROI Curran

Curran 1934, 25.

Typical locality : TRANSVAAL : Pretoria.

8 mm. Thorax black with pale humeri, pleura and scutellum. Frons of male one-fourth wider than eye and with two pairs of proclinate orbital setae. Jowls not quite half as wide as the eye at its greatest diameter. The basal fourth of the third antennal segment strongly produced above and forming an angle. Pteropleural seta very long, exceeding tip of lower squama. First abdominal segment apparently without marginals, second and third each with a pair of median discals and marginals, fourth with a row of discals and marginals and with coarse, bristle-like hair.

At my request both Dr Curran and Dr Munro, to whom the type has been returned according to Curran (1934, 25), have made a thorough search for it, but so far it has not been found. I have, therefore, been unable to confirm some of the characters used in the present key, among them the formation of the mouth-margin.

PLATYSCHINERIA CUTHBERTSONI Villeneuve

Villeneuve 1942, 52.

Typical locality : S. RHODESIA : Khami.

11–12 mm. Wholly dull-yellow, with brown tarsi, yellowish palpi and black antennae ; the arista yellow and bare, wholly incrassate, elbowed ; even the first segment elongate and somewhat curved and with 3 small proclinate orbital setae. Frons of male four-fifths head-width. Facial ridges without ascending setae. Parafacialia almost wholly black-setulose, almost as wide, and jowls four-fifths as high, as the eyes. Third antennal segment (♂) about six times as long as second. Setae on disc of mesonotum small ; *pra* rather strong ; 4 *post dc* ; two *post acr*. Scutellum with three pairs of marginal setae, the apical ones smaller and decussate. First abdominal segment without marginals, second with a pair, third and fourth with a row, of marginals, which are all rather short. R_5 closed and petiolate.

The genus differs from *Germaria* and *Atractochaeta* by the setulose and much wider parafacialia, the longer third antennal and first aristal segment, from *Germaria* further by petiolate R_5, etc., and the species is well distinguished by its pale coloration. The characters mentioned by Villeneuve render it very probable that *Platyschineria* is really closely related to *Germaria*.

8. THELAIRINI

Mesnil (1939, p. 48) has pointed out that this tribe is closely related to Minthoini, and not only the position in the key but also the formation of the fore tarsi in the female, which in *Allothelaira* are distinctly somewhat compressed and dilated towards apex of each segment, confirm this view. The two genera of the Ethiopian region are distinguished by several important characters.

Key to the Ethiopian genera of Thelairini

1 (2). r_1 setulose ; tip of apical cross-vein separated from wing tip by considerably more than length of *r–m* ; apical cross-vein concave, the bend angular, with a short appendage on fold (in the Ethiopian forms). Subapical scutellars much closer to apex than to base of scutellum, preapical scutellars well developed. 3+3 *acr*, the last *prst* pair very close to suture, much closer than the last *prst dc*. First tergite with strong median marginals ..... *Thelaira* R.-D.

2 (1). r_1 bare ; tip of apical cross-vein separated from wing tip by about length of *r–m*, apical cross-vein straight or almost so, bend obtuse without an appendage or fold. Subapical scutellars about as distant from apex as from base, preapical scutellars indistinct. 2+2c. 2 *acr*, all of them much farther from suture than the nearest *dc*. First tergite without median marginals. (Antennae, mouth-parts, legs, scutellum and abdomen pale testaceous to pale ferruginous, fourth tergite with a pair of large suffused, sometimes fused, piceous spots, base narrowly white dusted, base of third segment less conspicuously so ; rarely third segment piceous on posterior part and this coloration continued in a median vitta on anterior segments ; mesonotum whitish dusted at

sides, with a pair of broad fuscous vittae, between them the beginning of linear-paramedian vittae and some brown or golden-brown dust, which extends over scutellum)..... *Allothelaira* Villen.

THELAIRA Robineau-Desvoidy 1830

The only Ethiopian form so far described has usually been treated as a subspecies or even synonym of the Holarctic *Th. nigrips* F. (=*leucozona* Panz.). Since it differs by several important characters, and since two other closely-related Ethiopian forms are at hand, I prefer to uphold its status as a species, although it appears quite possible and even probable that a revision of the genus on a world-wide scope and a study of the distribution of the various forms will prove that *altoplani* is only a subspecies of *nigripes*. It differs from the latter by the more angular bend of *m*, which is prolonged by the vestige of a vein or a short fold, the frons of the male often more evenly and more strongly dilated (in *nigripes* the posterior third of the frons is parallel-sided and only about one-fifth head-width whilst in the Ethiopian forms the vertex is often about a quarter of the head-width, and as a rule the frons is dilated from vertex onwards), by the much denser dust of the thorax with the consequent appearance of well separated linear paramedian and moderately broad outer vittae (whilst in the Holarctic species the vittae are suffused and not very conspicuously separated), and by the much more extensively testaceous abdomen of the male.

Key to the Ethiopian species of Thelaira (♂♂ *only*)

1 (4). Legs and basicosta piceous-brown to fuscous-black, the tibiae often somewhat brownish translucent. Abdomen in male as a rule with a narrow black median vitta.

2 (3). Abdominal segments with fuscous hind margins and basal half or more of segments 2–4 densely pale greyish-golden dusted, the median vitta in posterior view almost entirely disappearing, in dorsal view suffused fuscous-grey ; segments 2–4 with about 2 pairs of median discals, the hair on median vitta erect and stiff, rather long ..... *aurofasciata* sp. n.

3 (2). Abdominal segments 1 and 2 without dark hind margins ; only basal quarter or third of segments 2–3 with golden or whitish dust, which is noticeable only in certain directions, and therefore appears to be restricted to one or two transverse spots ; median vitta as a rule conspicuous in every view, seldom absent ; intermediate segments normally with one pair of strong median discals each, the hair on median vitta fine, slightly curved, in male half-erect and not or hardly longer than diameter of femur..... *altoplani* Speis.

4 (1). Legs testaceous with piceous tarsi. Basicosta testaceous. Abdomen wholly pale-ferruginous with some pale-golden or silver dust at base of each segment. Intermediate abdominal segments with about 2 pairs of strong median discals each, the hairs on the strip between the median discals stiff, tending to develop irregular (♀ unknown) discals, upright, and some of the hairs markedly longer than width of femora *luteiventris* sp. n.

THELAIRA AUROFASCIATA, sp. n., ♂

Fuscous-black with dense greyish-white to pale-golden dust, abdomen extensively translucent with a dark median vitta and hind margins, mesonotum with a pair of slightly diverging linear paramedian vittae and a broadly interrupted narrow outer vitta, which fades out towards the last *dc*, fuscous, the space between the vittae of each side largely dusted brown, especially between the *dc* and the outer vitta, in posterior view a broad shifting fuscous median vitta extending between the *acr* and from scutellar base to suture, following the latter on each side, scutellum in a similar way transversely darkened on basal quarter or fifth, with some brown dust behind basal angles and a dark streak from base of lateral surface to the subapical marginals, postalar callosities largely fuscous with brown dust ; first abdominal segment piceous black with a semi-circular dull-testaceous area on each side, second and third dull-testaceous with the apical third and median fourth forming a piceous ⊥ ; the median basal part overlaid like the rest of the basal half to two-thirds by dense whitish-golden dust, fourth segment hardly translucent pale, otherwise similar. Palpi, tip of second and extreme base of third antennal segment orange, extreme tip of femora pale ferruginous, trochanters largely rufous-brown.—*Head* densely and evenly dusted pale greyish-golden, with the clypeus more silvery, interfrontalia reddish-brown ; eyes practically bare ; frons at vertex almost a quarter (0·23–0·24) head-width, conspicuously dilated with concave sides to lunula, where it is two-fifths (0·38–0·41) head-width, interfrontalia evenly somewhat dilated forward with straight sides, slightly wider than the parafrontalia at each point, parafrontalia with 8–11 inclinate setae, the hindmost two of which are mainly reclinate, whereas the anterior two descend on the parafacialia, and with a row of black setulose hairs along their outer side, ocellars and inner verticals moderately strong, outer verticals absent ; parafacialia bare, at middle almost half as wide again, jowls almost twice as wide, as third antennal segment. The latter almost thrice as long as wide, falling short of mouth-margin by two-thirds its own length ; arista short-plumose on proximal four-fifths, almost as wide, including plumosity, as third antennal segment.—*Thorax* with 3 +3 *acr* and *dc*, 0 +3 *ia* ; outer *ph* on a virtually straight line with the main *ph* and the *prst*, like the *pra* rather weak ; basal and apical marginals of scutellum rather strong, the latter decussate, subapicals very strong, diverging, twice as widely separated from each other as from the basal scutellars, preapicals moderately strong ; 2 weak anterior mesopleurals, 1 +1 *stpl*, the anterior one strong, the other very strong.—*Abdomen* oblong-subconical with narrowly rounded apex ; anterior two segments with a pair of strong median and lateral marginals, posterior segments with a row of strong marginals, segments 2–3 in addition with 2–3 pairs of irregular discals, fourth with 1–2 irregular rows of discals.—*Wings* brownish hyaline with the fore margin up to r_{2+3} more conspicuously browned ; r_1 setulose dorsally from *h* to tip, ventrally on bent section, r_{4+5} setulose on dorsal surface more than half-way to *r–m*, on ventral surface with only a small setula on node ; r_1 exceeding *r–m* by more than half length of its apical section, *r–m* almost at middle of discal cell, *m–m* rather sinuous and oblique, bend of *m* strongly obtuse but rather angular, apical cross-vein

strongly oblique, somewhat outwardly concave. Calyptrae whitish-grey with whitish border and fringe, the lower one opaque. Halteres dull reddish.—*Legs* slender ; fore tibia with a row of *ad* setulae and 2 *p* setae ; mid femur with an *av* seta near base and 2–3 rather strong *pv* in basal two-fifths, mid tibia with 1 *av*, 2 small *p* and 2 (in the Lagos specimen only 1) strong *ad* setae ; hind femur with 4–5 alternatingly stronger *av* setae in basal half, 3–4 near apex, and 2–4 long and strong *pv* setae in basal two-fifths, hind tibia with 2 *av*, 2 *pd* (preceded by some small ones) and a row of about 8 very unequal and largely alternatingly stronger *ad* setae.

Length 9·0–10·0 mm., of wings 7·7–8·8 mm.

Gold Coast : Obuasi, Ashanti, 7. vii. 06 (*W. M. Graham*), ♂ type, 1922 (*E. G. Payton*, 1 ♂ paratype. Nigeria : Lagos, 7 v. 53 (*H. O. Brown*), 1 ♂ paratype.

THELAIRA ALTOPLANI Speiser.

Thelaira altoplani Speiser 1914, *Deutsch. ent. Z.* **1914** : 12 ; Villeneuve 1914, *Rev. Zool. afr.* **3** : 439.

Thelaira palliventris Curran 1928, *Bull. Amer. Mus. nat. Hist.* **57** : 378 ; Villeneuve 1935, *Rev. Zool. Bot. afr.* **27** : 138 ; 1936, *Bull. Mus. R. Hist. nat. Belg.* **12** (12) : 5.

Typical localities : Cameroons : Dschang : of *palliventris* ; Belgian Congo : Garamba. Rhodesia : Que Que. Transvaal : Pretoria. Recorded from Nyasaland : Zomba. S. Nigeria : Oshogbo. Belgian Congo : Kivanda. In B.M. from : Sierra Leone, 1858 (*J. Foxcroft*). S. Nigeria : Oshogbo 18. iii. 11 (*T. F. G. Mayer*). N. Nigeria : Omu, 3. v. 12 (*J. W. S. Macfie*). Gold Coast (*W. P. Lowe*) ; Kumasi, 6. vii. 47, 23. viii. 47, 14. ix. 47, 15. ix. 47 (*J. Bowden*) ; Accra, viii. 22 (*J. W. S. Macfie*). Tanganyika : Kilosa, 17. iv. 22 (*A. Loveridge*) ; Babati, Mbulu, 28. vii. 49 (*E. Burtt*), 4 ♂, 2 ♀, bred ex pupa. N.W. Rhodesia : Lueska, 3. xii. 13 (*R. C. Wood*). S. Rhodesia : Vumba Mts., 19. ii. 35 ; Salisbury, xii. 95 (*G. A. K. Marshall*) ; 15. ii. 35, ex *Spilosoma* (*A. D. Caley*). Nyasaland : Zomba iv. 10 (*Stannus*) ; Mt. Mlanje, 27. x. 12, 17. xii. 12 (*S. A. Neave*). Portug. E. Africa : Lorenzo Marques, 1906–07 (*F. D. McMillar*) ; 27. ii. 36, ii. 39 (*Dugsdale*). Zululand : Ingwavuma, 19.111 (*E. W. Baxtor*) ; Nagana Res. Lab., 14. iv. 22 (*H. H. Curzon*). Natal : Weenen, iii. 24, x–xi. 24, i. 25, iii–iv. 25 (*H. P. Thomasset*) ; Estcourt, ix–x. 96 (*G. A. K. Marshall*). Transvaal : Barberton (*P. Rendall*) ; Johannesburg, 6000 ft., 1. and vi. 99 (*J. P. Cregoe*). Basutoland : 7. xi. 54 (*C. H. Andrewes*). Angola : Benguella, x. 04–11. 05 (*F. C. Wellman*). Seen from Sudan : Gendittu, 24. x. 23 (*W. E. Gifford*) ; Delami, 6. vi. 27, rock shade (*W. Ruttledge*). Kenya : Uyoma, C. Kavirondo, vi. 27 (*Symes and Hopkins*) ; Ngong, iv. 41 (*V. G. L. van Someren*) ; Nyeri, vi. 40 (*V. G. L. van Someren*). Uganda : Kawanda, 7. iv. 42 (*T. H. C. Taylor*). S. Rhodesia : Hope Fountain, 3. xii. 30 (*N. Jones*), 13. xii. 21 (*Rhodesia Mus.*). Belgian Congo : Katoka, Luluabourg, vii. 38 (*R. P. Vankerckhoven*) ; Elisabethville, iii. 35 (*P. Quarré*) ; Gandajika, Eala, 22. viii. 47 (*Henrard*) ; Rutshuru, 12. v. 36 (*L. Lippens*) ; Urundi, Bururi, 1800–2000 m., 5–12. iii. 53 (*P. Basilewsky*), 1 ♀. Madagascar : Tsimbazaza, 18. x. 50 (*R. I. Benoist*) Inst. Sci. Madag.).

The only male from Madagascar has the abdominal vitta wider than normal African specimens, and possibly belongs to a distinct subspecies.

THELAIRA LUTEIVENTRIS, sp. n., ♂

Fuscous-black with rather dense silver-white to silver-grey dust, abdomen, legs—except tarsi—and palpi pale ferruginous ; mesonotum with a pair of linear undusted paramedian vittae and of narrow incomplete outer vittae between the *dc* and *ia*, the pale dust thinner between the *dc* and the vitta, apex of scutellum dull translucent ferruginous, base of intermediate abdominal segments with a very narrow band of pale-golden dust which is slightly broadened on dorsolateral surface, fourth segment with a large almost semicircular basal patch of pale silver to golden dust on lateral surface, faintly connected at base of dorsal surface with that of the other side ; antennae dull ferruginous, most of third segment fuscous ; tarsi piceous.—*Head* densely dusted silver-white to silver-grey, in certain directions appearing dark grey ; eyes practically bare ; frons at vertex less than a quarter (0·21–0·24) head-width, considerably dilated with concave margins to lunula, where it is about two-fifths (0·38–0·43) head-width, interfrontalia reddish piceous, markedly dilated forward with slightly concave sides, at middle subequal in width to, in front and behind somewhat wider than, parafrontalia, the latter with about 12 subequal inclinate setae, otherwise as described for *aurofasciata*, ocellars and inner verticals not very strong, outer verticals indistinct ; parafacialia at middle more than half as wide again, jowls twice as wide, as third antennal segment. The latter about thrice as long as wide, falling short of mouth-margin by two-thirds its own length ; arista plumose on basal two-thirds, one-half (Nigeria) to one-fifth (Sudan) wider, including plumosity, than third antennal segment.—*Thorax* with 3–4 +3 *acr*, other setae as described for *aurofasciata*, but only one small but distinct anterior mesopleural present.—*Abdomen* as in *aurofasciata*, but the hairs longer and stronger and the erect hairs near median line more numerous and conspicuous, the discal setae thus more irregular.—*Wings* greyish subhyaline, fore margin and base somewhat reddish yellow ; r_1 setulose on dorsal surface from *h* to middle of last section, bare on ventral surface, wing otherwise as in *aurofasciata* but bend of *m* much less obtuse, in three of the specimens with a more or less distinct appendage, apical cross-vein rather strongly oblique and hardly concave in distal, two-thirds, but conspicuously concave outwardly in proximal third. Calyptrae pale ochraceous-grey with dull yellowish border and whitish fringe. Halteres dull yellowish red.—*Legs* as described for *aurofasciata*, but mid femur without an *av* seta, hind femur in basal half with only 2 not very long *av* setae, between which a small one is usually present, 2–3 *pv* in basal two-fifths and with 1–2 *av* setae near apex, hind tibia with 2 *av*, 3 successively stronger *pd* (but in one Sudan specimen 4 alternating stronger and smaller ones) and with the *ad* much as in *aurofasciata*.

Length 9·1–11·4 mm., of wings 7·2–9·3 mm.

N. Nigeria : Azare, 1928–1929 (*Ll. Lloyd*), ♂ type, 1 ♂ paratype. Sudan : Talodi, 15. viii. 29, on Dura (*F. Whitfield*), 2 ♂ paratypes.

ALLOTHELAIRA Villeneuve

Villeneuve 1915, *Bull. Soc. ent. France* 1915 : 226. Only species and genotype : *Allothelaira diaphana* Villen.

ALLOTHELAIRA DIAPHANA Villeneuve

Allothelaira diaphana Villeneuve 1915, l.c. p. 226.

Type localities : GOLD COAST : Aburi. S. NIGERIA : Oshogbo. SIERRA LEONE : Bomaru (♀ paratype, in B.M.). TANGANYIKA : Primary Forest, Moero, Grauer 1910 (Vien. Mus.). The male in the B.M. from Aburi 1912–13 (*W. H. Patterson*), labelled "*Allothelaira diaphana* Villen. Typ." by Villeneuve, is herewith selected as the type. In B.M. further from : GOLD COAST, 1912–22 (*G. S. Cotterell*) ; 1913 (*A. E. Evans*) ; nr. Accra 1919 (*Mrs. W. Smith*) ; Obuasi, Ashanti, 18. vi., 15. vii., 4. viii. 07 (*W. M. Graham*) ; Dunkwa, Ashanti, 2. vii. 07 (*W. M. Graham*). NIGERIA : Umudike, 15. i. 51 (*J. L. Gregory*) ; nr. Lagos, 30. xii. 19 (*W. P. Lowe*). SIERRA LEONE : Tiama 1924 (*D. B. Blacklock*). Seen from : GOLD COAST : Kwadaso, 3. x. 52 (*J. Bowden*) ; Kumasi, 17. iii. 47 (*J. Bowden*). BELGIAN CONGO : Bambesa, xii. 33 (*H. J. Bréda*).

9. MINTHOINI

The compressed front tarsi and abdomen are very distinctive characters of the majority of the forms, but the tarsi of *Euthera*, one of the few tachinid genera with a definite wing " pattern ", are much less typical. *Euthera* has, therefore, in the past been made the type genus of a separate group, but the relationship with *Mintho* is in my view unmistakable.

Key to the Ethiopian genera of Minthoini

1 (6). R_5 open. Arista plumose. Ground-colour of body black. *post acr* absent, except for the *prsc* pair, 1–2 *prst acr* present, but none close to suture. Claws and pulvilli of male very long, of female very small, especially on front legs.

2 (3). Basal scutellars small, apical scutellars of median length. Bend of *m* obtuse, without an appendage. (Mid tibia with only 1 *ad*. Wings slightly brownish towards apex and costa. 7–8 mm.) ..... *Dyshypostena* Villen.

3 (2). Basal (and subapical) scutellars stronger than apical ones. 2+1 *stpl*. Bend of *m* angular, usually with a genuine appendage. (Mid tibia with 1–2 *ad*.)

4 (5). Interfrontalia well developed everywhere (♂ ♀). Aristal hairs not markedly longer than width of third antennal segment. Costal spine small or indistinct. (Femora and coxae wholly pale testaceous) ..... *Synhypostena* Villen.

5 (4). Interfrontalia obsolete in intermediate third. Most of the aristal hairs much longer than width of third antennal segment ; a seta on the second antennal segment as long as the arista. Costal spine longer than *r–m*. Ocellars very small or indistinct. (Femora and coxae more or less browned. Apical two-fifths of wing, fore margin and fifth vein strongly infuscated. 12–13 mm.) ..... *Megistodexia* Tns.

6 (1). R_5 petiolate or closed in margin. Arista practically bare, or abdomen conspicuously orange-red at sides.

7 (8). Clypeus not keeled. Arista conspicuously haired. Wings without a pattern ; R_5 closed in margin or the stalk shorter

than *r–m* ; bend of *m* with a long genuine appendage. Abdomen strongly compressed, largely red. *pra* absent, less often present but very small; only the last 1–2 *post ia* developed, seldom the most anterior one also present but very small ..... *Mintho* R.-D.

8 (7). Clypeus with a conspicuous longitudinal keel. Arista bare (pollinose). Wings banded ; stalk of R_5 longer than *r–m* ; bend of *m* in Ethiopian species without the trace of an appendage. Abdomen slightly compressed, wholly dark. Scutellum with preapicals ; *post acr* (incl. *prsc*) and several pairs of *post acr* (including one at suture) present..... *Euthera* Loew.

DYSHYPOSTENA Villeneuve 1939

Villeneuve 1939, *Bull. Mus. R. Hist. nat. Belg.* **15** (48) : 4.

Villeneuve mentions the long, dilated fore tarsi of the female as a distinctive character, and this in connection with the other characters indicates clearly that the genus belongs to Minthoini although some of the genera listed by Villeneuve as related belong to Leskiini and other tribes. Mesnil (1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 13) confirms that *Dyshypostena*, *Synhypostena* and *Syneplaca* should be placed in the present tribe.

DYSHYPOSTENA TARSALIS Villeneuve

Dyshypostena tarsalis Villen. 1939, *Bull. Mus. R. Hist. nat. Belg.* **15** (48) : 5.

Typical locality : S. Rhodesia : Inyanga. Belgian Congo : Eala. In B.M. from Gold Coast : Obuasi, Ashanti, 17. vi. 07, caught on leaf (*W. M. Graham*), 1 ♂, 28. vii. 07, caught on bush (*W. M. Graham*), 1 ♀. Tanganyika : Amani, 3000 ft., 1956 (*J. G. Halcrow*), 1 ♀.

According to Villeneuve's description " le front de la ♀ égale en largeur la moitié d'un oeil ; il est à bords parallèles . . .". In the females from Obuasi and Amani the vertex is half the width of an eye but the sides of the frons, though being practically straight, diverge rather strongly towards lunula. In the type the ocellars are said to be absent, but in the females seen they are small and very fine, hairlike, divaricate. Whilst the type has only 1 +1 *stpl*, there are 2 +1 in all the three specimens I have studied. The second of these characters probably differs within the range of individual variation, and the additional *stpl* may have to be judged in the same way, or it may indicate a different geographical form. The difference in the shape of the front, however, would seem to prove a specific difference, unless Villeneuve was thinking of the frons in describing the width but only of the frontal vitta (interfrontalia) in describing the frons as parallel-sided.

SYNHYPOSTENA Villeneuve

Villeneuve 1939, p. 6. Genotype : *Synhypostena pedestris* Villeneuve 1939.

Key to the Ethiopian species of Synhypostena

1 (2). First tergite without median marginals. Ocellars fine but distinct. Wings with the apical third clouded. Mid tibia normally with a small *ad* basad of the strong one. 8.5–10 mm. *pedestris* Villen.

2 (1). First tergite with strong median marginals. Wings without a marked cloud.

3 (4). Parafacialia less than half as wide at middle as third antennal segment. Wings uniformly brown. Ocellars absent. 8 mm... **brunnea* Mesnil.

4 (3). Parafacialia fully half as wide at middle as third antennal segment. Wings evenly slightly smoky. Ocellars usually distinct but fine. 9.5–10.5 mm. ..... *brunnea ruwenzorica* ssp. n.

SYNHYPOSTENA PEDESTRIS Villeneuve

Synhypostena pedestris Villeneuve 1939, *Bull. Mus. R. Hist. nat. Belg.* **15** (48) : 7.

Typical locality : Belgian Congo : Mayumbe. In B.M. from : Uganda : Kampala, 17. xi. 15 (*C. C. Gowdey*), 1 ♂ ; 20. x. 29 (*H. Hargreaves*), 1 ♀, 16. ii. 31, 1 ♀, 2. xi. 43, 1 ♂ ; 6. xi. 26 (*G. L. R. Hancock*), 1 ♂ ; 12. xii. 34 (*F. W. Edwards*), 1 ♀. Seen from : Bwamba Valley, W. Ruwenzori, vii–viii. 46 (*G. R. C. van Someren*), 1 ♀. Gold Coast : Eduadiu, Ashanti, 13. i. 08, caught on leaf (*W. M. Graham*), 1 ♀ ; Obuasi, Ashanti, 31. vii. 07, on bush (*W. M. Graham*), 1 ♂.

SYNHYPOSTENA BRUNNEA Mesnil

Synhypostena brunnea Mesnil 1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 10 (♂).

Typical locality : Belgian Congo : Nyasheke, volc. Nyamuragira 1820 m., Parc National Albert. Not seen.

SYNHYPOSTENA BRUNNEA RUWENZORICA, ssp. n.

Uganda : Namwamba Valley, Ruwenzori, 6500 ft., xii. 34–i. 35 (*F. W. Edwards*), ♂ type, 1 ♂ 1 ♀ paratypes ; W. Ruwenzori, 8–9000 ft., vii. (*G. R. C. van Someren*), 1 ♂ paratype (returned to Dr van Someren).

MEGISTODEXIA Townsend

Megistodexia Townsend 1932, *J.N.Y. ent. Soc.* **40** : 456 ; 1939, Man. Myiol. **9** : 118.
n. syn. *Syneplaca* Villeneuve 1938, *Bull. Mus. R. Hist. nat. Belg.* **14** (38) : 13.

The descriptions of both *M. diaristata* Tns. and *S. ghesquièrei* Villen. fit exactly the specimen from Mayumbe which I have studied, though Villeneuve did not mention the remarkably long seta of the second antennal segment, nor did he refer to his slightly earlier description of *Syneplaca* when he introduced his two genera *Synhypostena* and *Dyhypostena*, although these are very similar, and closely related to the present genus.

MEGISTODEXIA DIARISTATA Townsend

Megistodexia diaristata Townsend 1932, *J.N.Y. ent. Soc.* **40** : 456 ; 1939, Man. Myiol. **9** : 118 ♂.
n. syn. *Syneplaca ghesquièrei* Villeneuve 1938, *Bull. Mus. R. Hist. nat. Belg.* **14** (38) : 13.

Type locality : Spanish Guinea (=Muni) : Uelleburg : of *ghesquièrei* : Belgian Congo : Eala. In B.M. from Gold Coast : Dunkwa, Ashanti, 2. vii. 07 (*W. M. Graham*), 1 ♀. Uganda : N.W.-shores of Victoria Nyanza, 3800–3900 ft., 12–15. ix. 11 (*S. A. Neave*), 1 ♀. Seen from : Belgian Congo : Mayumbe, Tshela, v. 23 (*J. Ghesquière*), 1 ♀.

Townsend knew only the male, it is therefore useful to state that the long seta of the second antennal segment is present in both sexes. Like Villeneuve's female paratype the Mayumbe specimen has only one proclinate orbital seta

and one praevertical seta (directed outward), but the two B.M. females have two proclinate setae and one praevertical seta.

MINTHO Robineau-Desvoidy 1830

Minthodes B.B. is included in the present genus, as its characters are more those of a subgenus in the traditional sense than of a genus. Nevertheless it is obvious that its species form a natural aggregate, because several characters define the same groups of species. Whether *M. rhodesiana* really belongs to sbg. *Minthodes* and to *Mintho* and Minthoini appears somewhat doubtful (see below).

Key to the Ethiopian species of Mintho

1 (4). First tergite with well-developed median marginals. Costal spine conspicuous. *pra* very small or absent ; normally 2 (–3) *post ia*. (Sbg. *Minthodes* B.B.)

2 (3). Ocellars absent or hairlike. Apical cross-vein concave, the bend forming a right or sharp angle, the stalk of R_4 shorter than *r–m*. Scutellum entirely dark. Third antennal segment more than twice length of second. Fore coxae pale testaceous, posterior ones more or less pale ..... *flavicoxa* Bezzi (=*africa* Villen.)

3 (2). Ocellars " ordinary ". Apical cross-vein straight, the bend obtuse, stalk of R_4 nearly half the length of the apical cross-vein. Apex of scutellum dull testaceous. Third antennal segment " almost " half as long again as second (♀). Coxae black but with whitish pollinosity ..... **rhodesiana* Villen.

4 (1). First tergite without median marginals. Costal spine indistinct or absent. *pra* absent ; only the last *ia* present. Interfrontalia dull ferruginous. (Sbg. *Mintho s.* str.)

5 (6). Median vitta of abdomen complete. Mentum brown to fuscous-brown. ♂ : eyes separated by one-fifth head-width ; second to fourth abdominal segments appearing densely and wholly silver dusted if seen in a dorsal (slightly antero-dorsal) view, mesonotum also densely silvery if viewed similarly.
♀ : second and third abdominal segments appearing silvery on less than basal half and almost only laterally ..... *argentea* Bezzi

6 (5). Median vitta of abdomen absent or replaced by faint suffused incomplete median spots ; abdomen with only some thin whitish dust at base of intermediate segments. Mentum testaceous. ♂ : eyes separated by more than a quarter head-width ..... *isis* Wied.

MINTHO (*MINTHODES*) *FLAVICOXA* Bezzi

Mintho flavicoxa Bezzi 1911, *Boll. Lab. Zool. Portici* **6** : 63 ; Villeneuve 1914, *Rev. Zool. afr.* **3** : 436.

Mintho lacera var. *africa* Villen 1913, *Rev. zool. afr.* **3** : 37 ; 1914, type in B.M.

Typical locality : TRANSVAAL : Pretoria ; of *africa*. GOLD COAST : Sanyani 1910 (*W. P. Lowe*) ; N.W.P., Ashanti (in B.M.) ; NIGERIA : Oshogbo (paratype in B.M.). Recorded from BELGIAN CONGO : Medie. In B.M. from ABYSSINIA : Gatelo Amaigu, 4. xi. 11 (*R. J. Sfordy*). KENYA : Kabete (*W. P. Lowe*), iii. 22 (*H. E. Box*). SIERRA LEONE : Njala, 27. i. 31, 27. v. 30, vi. 36 (*E. Hargreaves*). GOLD COAST : Kumasi 24. ii. 47, 5. vii. 47, 2. x. 46

(*J. Bowden*). S. NIGERIA : Ibadan, 22. vi. 13 and 31. vii. 13 (*W. A. Lamborn*). UGANDA : Lukumbi, Kyagwa, 2. viii. 29 (*H. Hargreaves*). TANGANYIKA : Kilossa, 15. vi. 22 and 12. viii. 22 (*A. Loveridge*) ; Morogoro, 29. 1. 17 (*A. Loveridge*). NYASALAND : Cholo (*R. C. Wood*) ; Dowa District (*J. B. Davey*). S. RHODESIA : Salisbury, 1927 (*H. S. Leeson*). NATAL : Weenen, xii. 23.–i. 24 and xi. 27 (*H. P. Thomasset*). S.W. AFRICA : Hoffnung, 27. xi. 33 (*K. Jordan*) ; Okahandja, 1–12. i. and 2–18. iii. 28 (*R. E. Turner*). Seen from KENYA : Ngong, iv. 40 (*V. G. L. van Someren*). S. RHODESIA : Bulawego, 8. vi. 10 (*Rhodesia Mus.*). BELGIAN CONGO : Fisi-Kalimbe, 6. ix. 22 (*Ch. Seydel*) ; Brazzaville, Ubangi, 8. ix. 26 (*M. Bequaert*).

MINTHO (*MINTHODES*) *RHODESIANA* Villeneuve

Minthodes rhodesiana Villeneuve 1942, *Bull. Soc. ent. France* **47** : 54.

Typical locality : S. RHODESIA : Gota Gota, Urungwe.

I have not seen anything that could be named *M. rhodesiana* Villen., and the description of the wing venation (see key) must arouse some suspicion whether Villeneuve has assigned the correct generic position to this species.

MINTHO ARGENTEA Bezzi

Mintho argentea Bezzi 1908, *Bull. Soc. ent. Ital.* **39** : 63, 64 (♂).

Typical locality : ERITRAEA : Adi Caiè. In B.M. from ABYSSINIA : Entoto, 9000 ft., 16. ix. 26, at foot of waterfall (*H. Scott*). KENYA : Lagari, mile 489, 1. iii–21. v. 00 (*C. S. Betton*) ; Nakuru, i. 13 (*G. V. L. van Someren*) ; Trans-Nzoia Dist. nr. Cherangani Hills, 40 mls. E. of Mt. Elgon, 6200 ft., ix–x. 24 (*C. R. S. Pitman*) ; Trans-Nzoia, 4 and 6. v. 19 (*T. J. Anderson*) ♂♂ and ♀♀ ; Nairobi, vii. 30, x. 30, vi. 31 (*V. G. L. van Someren*), 1932 (*C. B. Symes*) ♂ ♀ ; Ngong, iv. 36 (*V. G. L. van Someren*), ♂♂ ♀ ; 5450 ft., iv. 32 (*A. T. Gedye*) ; Kisii, i. 25 (*C. B. Symes*). UGANDA : Madi Opei, N. Uganda, v. 51 (*van Someren*) ; Kampala, 21. x. 36, 24. viii. 39, 14. ix. 39 (*H. Hargreaves*) ; Kawanda, 16. viii. 39 (*T. H. C. Taylor*) ; Entebbe, common in May (*E. D. W. Greig*). Seen from : SUDAN : Nagichot, 31. iii. 46 (*D. J. Lewis*), xii. 25–i. 26 (*G. D. H. Carpenter*). BELGIAN CONGO : Aba, Ituri, 1937 (*R. Belot*) ; Rutshuru, 12. v. 36 (*L. Lippens*) ; Arebi, vii. 25 (*H. Schouteden*) ; Vuhovi, 23. vii. 35 (*H. J. Bredo*) ; Musai, Butembo, vii. 35 (*H. J. Bredo*) ; Mahagi-Niarembe, x. 35 (*Ch. Scops*) ; Geti, Kibali-Ituri, iv. 39 (*R. Randour*). ABYSSINIA : Irga Alein, 15 and 22. ix. 35 (*Saska*) (all Mus. Congo Belge).

In the male the median vitta is strongly dilated at base of second and third abdominal segments where it reaches the lateral surface more or less broadly. In the female the vitta is sometimes developed as in the male, but more often it is not or only slightly dilated at base of second, and only moderately at third, segment. Such females with a more or less parallel-sided vitta would be traced to *praeceps* in Bezzi's key, but neither Bezzi nor I have seen Ethiopian specimens of the latter species.

MINTHO ISIS Wiedemann

Tachina isis Wiedemann 1830, Aussereur. zweifl. Ins. 2, p. 304.
Mintho capensis R.-D. 1830, Myod. p. 217.
Dexia isapis Walk. 1849, List. Dipt. 4, p. 848.

Typical locality : EGYPT ; of capensis : CAPE ; of *isapis* : EGYPT. Widely distributed in the eastern Mediterranean (SICILY, CYPRUS, SYRIA, PALESTINE, EGYPT). Recorded from SUDAN and ABYSSINIA (Bezzi 1908). In B.M. from : SUDAN : Erkowit, 17. v. 17 (*G. Halloran*). ERITRAEA : Adi Ugri, Star. 128 (*Mintho isis* Wied., Bezzi det.). SOMALILAND : Bohotle, 1903 (*A. F. Appleton*) ; Moascar, 26. iii. 42. N. NIGERIA : (*W. Morrison*) ; Minna, 20. viii. 10 (*J. W. S. Macfie*) ; Zungeru, 4. iii. 11 and iv. 11 (*J. W. S. Macfie*). TANGANYIKA : Kilimanjaro, ix. 28 (*J. E. M. Mellor*). Seen from : KENYA : Homa, South Kavirondo, xi–xii. 34 (*H. J. A. Turner*). BELGIAN CONGO : Loukala, Sankuru, iii. 25 (*J. Ghesquière*) ; Komi, Sankuru, 29 and 30. iii. 30 (*J. Ghesquière*) ; Region d'Abok, x. 35 (*M. et. Mme. Ch. Scops*) ; Aba, Ituri, 1937 (*R. Bel*ō*t*).

EUTHERA Loew 1866

Euthera Loew 1866, 46 ; Bezzi 1925, 275.
Preuthera Townsend 1932, *J.N.Y. ent. Soc.* **40** : 452.

Bezzi (1925, *Proc. Linn. Soc. N.S.W.* **50** : 276) published a key to the genus, and Townsend (1916, *Ent. News* **27** : 178 ; 1932, *J. N. Y. ent. Soc.* **40** : 452 ; 1936, Man. Myiol. **3** : 86) divided the genus into four and suggested two more (1938, Man. Myiol. **7** : 209). Although the formation of the facial keel and mouth-margin separates the holarctic forms rather clearly from the Ethiopian ones (and apparently the Australian species from both), there is little reason for splitting this small group of closely related and similar species into several genera. The existing generic names can be used to designate subgenera, but even then subgenera containing only one or two species each are of little practical use.

The tarsi, especially the fore tarsi, including those of the female, are similar to those of *Mintho*, and the other characters, too, seem to relate *Euthera* to Minthoini, although the species are much less typical of the tribe than those of the other genera. The species are rare and are easily recognised by their wing pattern, which consists of a dark fore-margin, a conspicuous black alula, and two transverse bands near apex, the proximal one being much the wider.

In the Ethiopian species (*Preuthera* Tns.) the facial keel is not swollen but has a distinct edge, and in two of them it reaches the mouth-margin, so that the latter does not project over the keel. In the other species, including the Ethiopian *burtti*, the mouth-margin does project, but, as far as I know, less so than the middle of the face, whilst in tachinids with typically projecting mouth-margin a *long* and deep concavity is interposed between the upper, more prominent part of the clypeus and the mouth-margin.

Two species, of which I have seen only the first, are known from the Ethiopian region, and a third is added now.

Key to the Ethiopian species of Euthera

1 (4). Apical scutellars absent or fine and diverging to parallel. Facial keel reaching mouth-margin, the latter not projecting.
2 (3). Palpi reddish yellow. Coxae and femora black. Parafacialia thinly setulose in middle. Scutellum with a pair of preapical

and diverging apical setae. Bend of *m* angular (though forming an obtuse angle), apical cross-vein less oblique (*ex* Bezzi) ..... *tuckeri* Bezzi

3 (2). Palpi black. Coxae and femora red. Parafacialia quite bare in middle, with a few hairs only above. Scutellum without preapical and apical setae, only with the two pairs of strong marginals. Bend of *m* more rounded, apical cross-vein more oblique. (*Ex* Bezzi) ..... **peringueyi* Bezzi

4 (1). Apical scutellars decussate and rather well-developed. Facial keel forming a conspicuous re-entrant angle with the projecting mouth-margin. Stalk of R_5 rather short ..... *burtti* sp. n.

EUTHERA TUCKERI Bezzi

Euthera tuckeri Bezzi 1925, *Proc. Linn. Soc. N.S.W.* **50** : 279.

Typical locality : TRANSVAAL : Koopmuiden, in S. African Museum. Recorded from N. NYASALAND (as *E. manni* Mik by Villen. 1913). In B.M. from : N. NYASALAND : Wovwi Str. 28. xi. 09 (*J. B. Davey*) (Villen. det. as *manni*). UGANDA : Eastern Busoga, 30. vii. 1911 (*S. A. Neave*). GOLD COAST : Winnebah, 7. v. 13, outside house (*A. Hutton*). NATAL : Umbilo, 5. x. 14 (*E. C. Chubb*). Seen from : SUDAN : Gendettu, 16. xi. 23 (*W. E. Gifford*).

EUTHERA PÉRINGUEYI Bezzi

Euthera péringueyi Bezzi 1925, *Proc. Linn. Soc. N.S.W.* **50** : 280.

Typical locality : CONGO : Chabra, in coll. Bezzi.

EUTHERA BURTTI, sp. n., ♂

Fuscous-black, dorsal surface with rather thin whitish-grey dust, which becomes more conspicuous only in posterior view, disc in dorsal view with conspicuous brassy reflections ; legs piceous with piceous-brown tibiae, tip of femora and extreme base of tibiae translucent reddish, palpi and antennae dull orange, third antennal segment largely browned.—*Head* with glossy piceous clypeus, facial ridges, jowls and anterior two-thirds of parafrontalia thinly, parafacialia more thickly, dusted silver-white, anterior third of parafrontalia glossy black with some whitish dust on outer part ; eyes bare ; frons at vertex one-sixth head-width, almost parallel-sided in more than posterior two-fifths and rather strongly widened from there to lunula, where it is almost two-fifths head-width, interfrontalia piceous-brown, parallel-sided in posterior two-thirds, slightly dilated anteriorly, twice as wide at middle as a parafrontale, the latter with 8–10 fine subequal inclinate setae and, to their outer side, rather dense fine half-erect black hairs, which extend downward on parafacialia almost to their lower end, ocellars not very strong, inner verticals moderately strong, outer ones fine and inconspicuous ; parafacialia at middle half as wide again, jowls almost thrice as wide as third antennal segment. Antennae as long as head, first segment projecting, second half as long again, almost thrice as long as wide, third three-and-a-half times as long, almost nine times as long as wide and half as long again as the arista, which is moderately thickened and pale testaceous in basal fourth, setaceous and fuscous in apical three-fourths.—*Thorax* with 2–3 *acr* and 3–4 *dc*, only the last pair

of each strong, last *prst acr* closer to suture than last *prst dc* ; 1+3 *ia*, the last 1–2 moderately strong, 4–5 humerals, 2–3 *ph*, a moderately strong *prst* and 2 slightly stronger *npl*, *pra* slightly stronger than first *post dc*, half as long as *sa* ; scutellum with very strong subbasal and subapical marginals (the latter parallel in type), and weak basal marginals, rather weak decussate apical marginals (slightly more than half as long as the subapicals) and preapicals (slightly stronger than the basal marginals) ; 1 prostigmal, anterior mesopleural very distinct, 1+1 strong *stpl*.—*Abdomen* oblong-ovate, somewhat laterally compressed and strongly convex both transversely and longitudinally ; dorsal basal excavation reaching hind margin of first segment, which is broadly emarginate ; anterior three segments without median and with weak lateral marginals, third with rather indistinct median and moderately strong lateral marginals, fourth with a row of rather strong marginals, discals wholly absent.—*Wings* whitish subhyaline with a fuscous pattern, fore margin dark from *c* to r_{2+3}, proximal band enclosing both *r–m* and *m–m*, beginning at level of tip of r_1 and somewhat broader at fifth vein than at r_{2+3}, distal band wedge-shaped, occupying apical three-tenths of R_3 (measured on r_{4+5}), its outer margin slightly concave from tip of r_{4+5} to bend of *m* (in *tuckeri* practically parallel-sided with the outer margin almost straight from tip of *m* to bend of *m* and forming an obtuse re-entrant angle at tip of *m* from where its anterior part follows r_{4+5} to its tip) ; veins (except *c*) bare ; r_1 exceeding level of *r–m*, which lies slightly beyond middle of discal cell, stalk of R_5 less than twice as long as *r–m*, apical cross-vein outwardly concave with the apex shortly curved up to r_{4+5}, *m–m* sinuous, anterior apical angle of discal cell hardly acute (almost 90°), posterior apical angle markedly acute. Calyptrae greyish-white with concolorous border and fringe. Halteres strongly infuscated.—*Legs* rather short, fore tibia with (1–?) 2 *pv* setae ; mid femur with 2 *a* setae near middle and 3–4 *av* and *pv* setae on basal third, mid tibia with an *av*, 2 *ad* and 2 *p* setae ; hind femur with an irregular row of 6–7 *av* setae, of which 2–3 in basal half and 2 near apex are stronger, and with 3–4 strong *pv* setae on basal half, hind tibia with 2 *av*, 3 *pd* and 1–2 *ad* setae, the latter forming part of a row of stronger somewhat unequal setulae.

Length 8·7 mm., of wings 6·1 mm.

TANGANYIKA : Old Shinyanga, 13. xi. 54 (*E. Burtt*), ♂ type.

10. LESKIINI

As understood here, the tribe contains the Leskiini and Aphriina of Mesnil (1939). The former are included by Mesnil in that group of Macquartiinae which has the basal dorsal excavation of the abdomen incomplete, whilst in Aphriina it reaches the hind margin of the first tergite. This character frequently varies in closely related species (e.g. in the genera *Wagneria* and *Macquartia*), and in some genera placed in Aphriina by Mesnil it is developed as in Leskiini. Nevertheless, British forms of the two groups can be separated well, since the Leskiini of this country have only one *ad* seta on the mid tibia whilst the Aphriina have two. In the Ethiopian region, however, the transition between both groups is so gradual that a separation does not seem to be possible. The oldest available name of the group appears to be Olivieriini and

the second-oldest Pyrrhosiini, but Leskiini has been used so widely that a return to these obsolete names, which are based on synonyms no longer in use, is undesirable. Robineau's name Graosomae is not available, since it is not derived from a generic name.

The following genera, not contained in the key, have been stated to belong to this group or belong possibly to it.

Gymnoglossa Mik. The only Ethiopian species, the generic identification of which would seem to require confirmation, has the three segments of the the arista subequal. This character will distinguish it from all Ethiopian Leskiini. It is not stated whether the mouth-margin is produced, and if this be not the case, the form may be expected to belong to Germariini (*q.v.*).

Oxymedoria Villen. (1916, 505) is placed by its author in " Pseudodexiidae degeeriaeformes " together with *Asboleola* and *Pyrrhosiella*, and by Townsend (1939, **9**, 233) in Leskiini. The hairy prosternum (Townsend 1939, 234) and the two pairs of reclinate upper frontal setae (Villeneuve 1916, 506, fig. 8) together with the " obtusely subrounded " bend of *m* (Townsend) seem to indicate that the genus belongs to Meigeniini. (The type has not yet been returned to London.)

Xanthopetia Tns. (type *Tachina fascipennis* Wied. from Nubia—not S. Africa as Mesnil says) has according to Townsend three *post ia* and was for that reason omitted from my paper on Ethiopian Phasiinae (van Emden, 1944, 389). I have found since that 3 *post ia* do occur in various genera which cannot be separated very well from that subfamily (van Emden 1954, 18, note 4), and Mesnil (1950, 107) considers that *Xanthopetia* is closely related to *Procatharosia*. If the genus were excluded from Phasiinae, it would probably be traced to the present tribe, into which it does not, however, seem to fit.

Key to the Ethiopian genera of Leskiini

1 (4). Mid tibia with only one *ad* seta. First abdominal segment (normally) without median marginals. 2+1 *stpl.* Both sexes largely testaceous, femora concolorous (*).

2 (3). Apical scutellars strong, subequal to the subapical ones, decussate and describing a curve which is dorsally convex. Only 2 *post ia*. Jowls a third height of the eye. Second abdominal segment with strong median marginals ; dorsal basal excavation of abdomen reaching hind margin of first segment. Proboscis longer than head. Antennae rather short, though somewhat longer than height of jowls..... *Subfischeria* Villen.

3 (2). Apical scutellars absent or small, up to about one-third length of the subapical ones. 3 *post ia*. Dorsal basal excavation of the abdomen normally not or slightly exceeding middle of first segment. Antennae rather long..... *Leskia* R.-D.

4 (1). Mid tibia with two *ad* setae. First abdominal segment with median marginals (except in *Cololeskia*). 1+1 *stpl.*

5 (6). First tergite without marginals (♂) ; intermediate tergites with irregular median discals. Apical scutellars rather strong, decussate. Palpi pale testaceous, well developed, considerably exceeding mouth margin. Pale testaceous, metanotum

* Femora and tarsi black, cfr. " *Clytia senegalensis* " Macq.

fuscous, part of occiput and most of mesonotum infuscated, fourth abdominal segments mostly brown (by post mortem changes?) ..... *Cololeskia* Villen.

6 (5). First tergite with marginals. Palpi fuscous, smallish and subcylindrical, not nearly reaching mouth-margin. Black species. (Aphriina.)

7 (8). R_5 closed or shortly petiolate; costal spine strong. Apical scutellars rather well developed, decussate. Tergites 2 and 3 with discals (and presumably marginals). 6–7 mm. South Africa ..... *Sarrorhina* Villen.

8 (7). R_5 open; costal spine absent. Apical scutellars absent. Tergites 2 and 3 without discals ..... *Ocypteromima* Tns.

SUBFISCHERIA Villeneuve 1937

Subfischeria Villeneuve 1937, Descriptions de Myodaires supérieurs. *Rev. Zool. Bot. afr.* **29**: 210.

On the authority of Mesnil (1939, 55) I included this genus in Dexiinae (1947, 629), without having seen a specimen. Villeneuve in the original description was uncertain whether to place it in Leskiini or Dexiinae (p. 211 "sa situation . . . est indécise"). Later Mesnil (1950, *Bull. Ann. Soc. ent. Belg.* **86**: 114) corrected his earlier statement and declared that *Subfisceria* belongs without any doubt in the dexiine subtribe Stominina, which he separates from the Dexiina mainly by the projecting mouth-margin. As in the only other genus of the group, *Stominina*, the occipital dilation is very well developed, the jowls are broad (though in *Subfischeria* their height does not quite equal the combined lengths of the second and third antennal segments), the apical scutellars are strong, and the dorsal excavation of the first abdominal segment reaches its hind margin. *Subfischeria* differs from *Stomina* by only one *ad* seta on the mid tibia, the absence of discal setae from the third abdominal segment, slightly narrower jowls, slightly more slender built, etc., tending in these characters and the slender proboscis more towards *Leskia*. According to Villeneuve the mid tibia shows 1 *v* and 1 *ad* seta, but in the specimen before me 1 *p* and 1 *ad* are present.

Unfortunately, neither Villeneuve nor I have seen a male, and the female is not readily separable from the Leskiini, being similar in this group and Stominina, whereas the male of *Stomina* is quite distinctive. As the female will probably be traced to Lekiini rather than Stominina, the genus is included here, and the key to the tribes Macquartiinae allows for this. The discovery of the male should enable a definite decision to be made, as the parameres and their attachment are of a different type in Dexiinae and Leskiini, the former having a single pair of thin laminate parameres the base of which is fused with that of the penis, whereas the latter have strongly sclerotized clawlike parameres which are entirely free and in their movement largely independent of the penis.

SUBFISCHERIA FLAVOGRISEA Villeneuve

Villeneuve 1957, *Rev. Zool. Bot. afr.* **29**: 211 ♀.

Type locality: CAPE PROVINCE. In B.M. from NYASALAND: Maiwale, 28. x. 28 (*W. A. Lamborn*), 1 ♀. Seen from: S.W. AFRICA: Mt. Brukkaros, 10. ix. 30 (*Mrs L. O. Sordahl*) (in U.S. Nat. Mus. Washington).

LESKIA Robineau-Desvoidy 1830

The species at hand belong by most or all of their characters to *Leskia* s. str., and this group seems to be very richly represented in Africa, where the formation of species and races is proceeding vigorously.

Key to the Ethiopian species of Leskia

1 (8). Second tergite without median marginals.

2 (5). Arista finely pubescent, longest hairs not longer than diameter. Mentum and labella together much longer than head at mouth-margin. First and second abdominal segments with a complete piceous-brown median vitta. Tip of hind femur with a narrow piceous apical ring.

3 (4). Hair on parafrontalia whitish and very fine, not easily seen. Median vitta of abdomen more or less incomplete or faint in posterior part of third segment, the latter undusted except for a narrow basal band of silver-white dust, fourth segment with a similar band and similar decumbent hair (♀) or wholly thinly dusted with inconspicuous bare dots at the base of the hairs, the latter fine and shorter than on third segment, but half-erect (♂)..... *bicolor villeneuvi* ssp. n.

4 (3). Hair on parafrontalia black and quite conspicuous on more than posterior half. Median vitta of abdomen complete and well developed on third segment, the latter in posterior view with or without a narrow basal band of pale dust, which may extend further backward on median line and on lateral surface. (Prosternum sometimes with a few small black hairs on margin)..... *lineaticollis* sp. n.

5 (2). Arista more or less plumose, more than half as wide, including plumosity, as third antennal segment. Mentum and labella together not or hardly longer than head at mouth margin..... *hirtula* Villen. . . . 6.

6 (7). First and second abdominal segments without, or at least without a complete, dark brown vitta. Arista short-plumose, not quite as wide, including plumosity, as third antennal segment, the longest hairs on underside subequal in length to those of upperside..... *hirtula hirtula* Villen.

7 (6). First and second abdominal segments with a complete piceous-brown median vitta, which extends to anterior part of third segment. Arista plumose (*), fully as wide, including plumosity, as third antennal segment, the longest hairs on underside distinctly, though slightly, longer than those on upperside..... *hirtula bwambana* ssp. n.

8 (1). Second tergite with median marginals, which are fine in some males but are never much less than half as long (whole length, not overlapping length) as third tergite. Arista bare or finely pubescent, longest hairs not or only slightly longer than its diameter.

9 (16). Combined length of mentum and labella longer than that of head.

* *Fischeria capensis* Curr. (1941, 5) from East London, Cape Province, will probably be traced to *bicolor bwambana*, but it differs from this and all other species known to me by the black interfrontalia. According to Curran the second abdominal segment "may have a pair of subappressed bristle-like hairs" but no real marginals. Since the proboscis is said to be short, *capensis* can apparently only be related to the species falling under 1 in the above key. The black interfrontalia distinguish *capensis* also from *Cololeskia pallida* Villen.

10 (11). 1+1 *acr*. Proboscis in female almost, in male three-quarters length of abdomen ; palpi in female far exceeding mouth-margin. Median marginals of second tergite strong in both sexes ..... *longirostris* Villen.

11 (10). Normally (2–3)+1 *acr*. Combined length of mentum and labella up to about half as long as abdomen ; palpi not (♂) or slightly (♀) exceeding mouth-margin.

12 (13). Proboscis not quite half as long again as head at mouth-margin. ♂ : median marginals of second tergite strong ; frons at narrowest part (vertex) one-third head-width (but without proclinate orbitals) ..... *darwini* sp. n.

13 (12). Proboscis at least two-thirds longer than head at mouth-margin. ♂ : median marginals of second tergite weak ; frons at narrowest part a quarter head-width.

14 (15). Median vitta of abdomen much dilated along fore margin of second and third segments. Parafrontalia with fine short black hairs. Longer, abdomen and thorax less thickly dusted, therefore appearing less pale. ♂ : interfrontalia much broader than a parafrontale (except at anterior end) ..... *taylori* sp. n.

15 (14). Median vitta of abdomen not dilated along fore margins, parallel-sided on second segment. Parafrontalia bare or only with single tiny white hairs. Smaller, rather thickly dusted. ♂ : interfrontalia not quite as wide as a parafrontale, except near ocelli ..... *pallidithorax* sp. n.

16 (9). Combined length of proboscis and labella not exceeding that of head. Median marginals of second abdominal segment very strong. Arista finely pubescent.

17 (20). Setulae on r_{4+5} confined to basal node. Several weak *prst acr*. Apical scutellars absent. Upper part of occiput with at least one row of black " setulae " behind occipital row. Anterior three abdominal segments with a complete fuscous-brown median vitta : third segment with the hind margin almost completely fuscous but often narrowly interrupted by the reddish-yellow ground-colour between the median marginal and the next marginal. Wing length more than 8 mm.

18 (19). Fuscous median vitta of abdomen half as wide as distance between subapical scutellars ; third abdominal segment testaceous with the posterior sixth to fourth largely fuscous (in addition to the median vitta) ; abdomen with thin whitish or yellowish dust, which hardly obscures the pattern. Lateral scutellars (normally) well developed ..... *lineata* sp. n.

19 (18). Fuscous median vitta of abdomen much wider, on second segment largely as wide as distance between subapical scutellars ; third segment wholly fuscous ; anterior three segments largely densely brown dusted, the pattern thus visible only in certain directions. Lateral scutellars absent ..... *pruinosa* sp. n.

20 (17). Setulae on r_{4+5} reaching more than halfway to *r–m*. Apical scutellars present, fine but decussate. Upper part of occiput with only a few odd black setulae, otherwise pale-haired. Median vitta of abdomen in male distinct only on first segment ; third segment somewhat rufous-brown behind but with a small fuscous

spot only on lateral surface round the lateral marginal seta. Wing length 4.5 mm. Scutellum without lateral seta ..... *pallicentris* sp. n.

LESKIA BICOLOR VILLENEUVEI, ssp. n.

S. NIGERIA : Oshogbo, 20–30. ix. 10, 1–13. x. 10, xi. 10 (*T. F. G. Mayer*), 3 ♀ ; Yaba, 20. ix. 09, on window (*W. M. Graham*), 1 ♀. W. UGANDA : Bwamba Country 1938 (*J. O. Harper*), 1 ♂. NYASALAND : Maiwale, 22. x. 28 (*W. A. Lamborn*), 1 ♂. S.E. BECHUANALAND PROT. : Lobatsi, 15. iii. 34 (*J. Ogilvie*), 1 ♂.

The only available male is from Nyasaland, whilst all the females are from W. Africa. It is quite possible, therefore, that some of the differences regarded as separate are in actual fact two subspecies.

Villeneuve has named and recorded the West African females as " *Fischeria bicolor* R.-D." (from Oshogbo), but in Palaearctic *bicolor* the proboscis is somewhat shorter, the median vitta of the anterior abdominal segments is fainter or absent, and the third abdominal segment is wholly dusted silver-white with bare dots at the base of the hairs. Villeneuve (1913, *Rev. Zool. afr.* **3** : 36) also mentions a male from Baro, Nigeria. This has not so far been returned to London.

LESKIA LINEATICOLLIS, sp. n., ♂ ♀

Pale testaceous with the occiput, apart from the cerebrale and most of thorax, fuscous in ground-colour and the abdomen increasingly more strongly orange towards apex, mesonotum rather densely dusted pale gold with linear incomplete paramedian and hardly wider broadly interrupted outer vittae, scutellum translucent pale testaceous ; abdomen with a narrow piceous median vitta, which in male is hardly, in female markedly, widened on basal part of each of the anterior three segments, but which does not extend onto fourth segment, hind margins of segments narrowly piceous, at least laterally ; antennae orange, greater apical half of third segment black, palpi pale orange, proboscis brown ; legs pale ferruginous with the tarsi and the extreme tip of the hind femora piceous.—*Head* with whitish-gold dust, more golden near vertex ; eyes with short sparse hairs ; frons of male at vertex about a quarter (0·25–0·28) head-width, moderately dilated with somewhat concave sides to lunula, where it is almost one-third (0·3–0·33) head-width, interfrontalia rufous-brown to dull orange, slightly dilated forward, about as wide at middle as a parafrontale, the latter almost perpendicularly sloping outward, with 11–14 rather strong and subequal inclinate setae, ocellars rather weak, inner verticals strong, outer ones indistinct ; frons of female at vertex one-third (0·33–0·35) head-width, evenly dilated with hardly concave sides to lunula, where it is two-fifths (0·40–0·42) head-width, interfrontalia slightly narrower at middle than a parafrontale, the latter with 10–11 inclinate setae, the last of them being reclinate, and to their outer side behind middle with 2 proclinate orbitals, ocellars rather weak, inner verticals strong, outer ones moderately strong ; parafacialia at least as wide (in the Damulaba female slightly narrower), jowls twice as wide, as third antennal segment. The latter falling

short of mouth-margin by almost twice (♂) or half again (♀) its own width, more than half as long again as second. Mentum and labella together somewhat longer than the head is high.—*Thorax* with 2+1 *acr* (the Damulaba ♀ with 1+1), last *prst acr* well in front of level of last *prst dc*, and 3+3 *dc* ; *pra* conspicuous but shorter than second *npl* ; 2+1 *stpl*, the hind one very strong, the lower one rather short.—*Abdomen* elongate subconical or somewhat fusiform, especially in female, apex rounded-truncate ; third segment of male appearing (!) hardly wider at base than long ; first and second segments with a pair of strong (♂) or moderately strong (♀) lateral marginals, third and fourth with 2–3 pairs of strong marginals.—*Wings* greyish subhyaline with brown veins, r_{4+5} with 4–6 setulae on basal node and just beyond, veins otherwise bare ; *r–m* more or less halfway between apical levels of *sc* and r_1, near middle of discal cell, bend of *m* obtusely rounded, apical cross-vein concave outwardly near tip ; *m–m* rather strongly sinuous, especially posteriorly and more so in male, where the posterior apical angle of the discal cell is acute. Lower calyptra greyish subopaque, with the margin broadly suffused ochraceous, border greyish ochraceous, fringe pale golden. Halteres pale reddish yellow.—*Legs* long and very slender, fore tibia with 2 *p*, 2 (or 1) smaller *pd* and near base a small *ad* setae, the latter sometimes replaced by a short row of very small setae ; mid femur with 2 *pv* setae near base and 2 *p* preapicals, in female also with a strong *a* seta towards middle, mid tibia with 1 *ad*, 1 *v* and 2–3 *p* setae ; hind femur with 2 *av* and 3 *pv* setae on basal half and an *av* and 2 *pd* preapicals, hind tibia with 2 *pd*, 1–2 *av* and 2–3 *ad* setae.

Length 7·3–10·7 mm., of wings 7·0–9·4 mm.

Uganda : Entebbe, 1929 (*G. D. H. C[arpenter]*), ♂ type, 3 ♂ paratypes ; Uganda, 1921 (*H. Hargreaves*), 1 ♂ ; Damulaba Forest, 27. x. 25 (*G. L. R. Hancock*), 1 ♀. S. Africa : Mossel Bay, Cape Province, iii–iv. 30 (*R. E. Turner*), 1 ♂.

The male collected by H. Hargreaves is more densely dusted and is a rather squashed specimen. The Mossel Bay male has the interfrontalia somewhat narrower and the thoracic vittae less conspicuous.

LESKIA HIRTULA Villeneuve

Myiobia hirtula Villeneuve 1936, 5.
Myiobia longirostris Villeneuve 1937, *Rev. Zool. Bot. afr.* **29** : 210 (♀).

Described from S. Nigeria : Oshogbo (in B.M.) ; Gold Coast : Aburi ; Nyasaland : Mt. Mlanje (in B.M.)

A female, in the B.M., collected at Oshogbo, 9. xii. 1910 (*T. F. G. Mayer*) has been marked "Typ." by Villeneuve. It is hereby selected the type of the species. In the three typical specimens (all female) in the B.M. the median vitta of the abdominal segments is indicated only near the hind margins, and the arista, including the plumosity, is narrower than the third antennal segment.

The type form is available also from the following localities : Sierra Leone : Taninahur, 14. ii. 25 (*E. Hargreaves*), 1 ♀. Gold Coast : Aburi, 1912–13 (*W. H. Patterson*), 1 ♂ ; nr. Accra, 1919 (*Mrs W. Smith*), 1 ♂, 1 ♀ ; Kumasi, 3. xi. and 16. xi. 46 (*J. Bowden*), 2 ♂, 15. ix. 47 5 ♂. Uganda :

Budongo Forest, 7–8. ii. 35 (*F. W. Edwards*), 1 ♀; Mbarara, 10. viii. 32 (*G. H. E. Hopkins*), 1 ♂; Divoti, 21. iv. 27 (*E. Hargreaves*), 1 ♂. KENYA: Jinja, ix. 28 and x. 30 (*V. G. L. van Someren*), 2 ♂; Nairobi, vii. 30 (*V. G. L. van Someren*), 1 ♂.

LESKIA HIRTULA BWAMBANA, ssp. n.

In two females from UGANDA: Bwamba Valley, vii. 45 (type in B.M.), and vi. 48 (paratype, returned to collector, *van Someren*) the anterior abdominal segments show a conspicuous narrow piceous-brown median vitta, which extends without a break to almost middle of third abdominal segment. As the plumosity of the arista is also distinctly longer, especially on the underside, this cannot be a simple variety, but is presumably a local subspecies of the Ruwenzori area or of part of it.

LESKIA LONGIROSTRIS Villeneuve

Myiobia longirostris Villeneuve 1937, *Rev. Zool. Bot. afr.* **29**: 210 (♀). Type locality: nr. Cape Town.

A male form from Mossel Bay, Cape Province, v. 21 (*R. E. Turner*) in B.M. belongs probably to this species although the palpi do not exceed the mouth margin (the proboscis being directed ventro-caudad). The proboscis of the female type is said to be almost as long as the abdomen. As the male abdomen must be considerably longer, the present specimen in which the proboscis is just over three-quarters the length of the abdomen, would seem to fit the description in this respect. The abdomen of the male, as is to be expected, is paler, being pale ferruginous with a moderately broad almost parallel-sided fuscous median vitta, which reaches the median marginals on each side, *m–m* is apparently somewhat more oblique and sinuous than in the type and reaches *m* distinctly beyond middle of the distance between *r–m* and bend (in the female type hardly beyond middle, this difference also being consistent with the different sex).

LESKIA DARWINI, sp. n., ♂

Pale ferruginous, greater upper part of occiput and parafrontalia infuscated, disc of mesonotum, sternopleura, hypopleura and metanotum fuscous in ground-colour, scutellum brown with the margin translucent pale-ferruginous; abdomen with a piceous-brown, brown-dusted, interrupted median vitta, which is rather narrow and incomplete on first tergite, occupying almost one-third of basal width of second one and gradually narrowing to one-fifth of segmental width at its hind end shortly in front of the marginals, third segment with an oblong median spot on basal two-thirds, which occupies about median third and which is more densely dusted brown, posterior two segments more reddish in ground-colour. Palpi and antennae light orange, more than apical half of third antennal segment infuscated; legs pale ferruginous, tibiae slightly, tarsi strongly browned.—*Head* rather densely dusted yellowish white, more yellowish on parafrontalia and anterior part of jowls, interfrontalia yellowish orange; eyes bare; frons at vertex one-third head-width, rather strongly broadened with somewhat concave sides to lunula

where it is fully one-half (0·52) head-width, interfrontalia gradually somewhat widened to lunula, shortly but rather strongly widened at hind end, slightly narrower at middle and in front than a parafrontale, the latter with 9–11 inclinate setae and a smaller additional one to the outer side of the longer two, hindmost inclinate and reclinate, and, on outer part, a dense row of black proclinate hairs, which become finer and shorter anteriorly, ocellars and outer verticals rather fine, inner verticals strong ; parafacialia half as wide again at narrowest part, jowls twice as wide, as third antennal segment. The latter falling short of the (conspicuously projecting) mouth-margin by almost twice its own width ; arista bare (pollinose), brown.—*Thorax* densely dusted greyish yellow, disc with brownish dust, in front of suture with four linear fuscous-brown vittae, the outer ones slightly widened posteriorly, not reaching suture but continued behind suture by a fuscous-brown streak ; with 2+1 strong *acr*, 3+3 strong *dc*, 0+3 *ia*, the anterior one weaker, 3 *ph*, *pra* subequal to second *npl*, the outer setae developed normally, notopleura haired ; subapical and basal scutellars equal, strong, the former hardly more widely separated from each other than from the basal ones, apical setae fine and upcurved, preapical discals rather fine ; anterior mesopleural rather long and conspicuous, 2+1 *stpl*, the lower one weaker.—*Abdomen* elongate, somewhat spindle-shaped ; dorsal basal excavation almost reaching hind margin of first segment, both this and second with a pair of strong median and lateral marginals, third and fourth with a row of strong marginals.—*Wings* (of type very incomplete) somewhat ochraceous, especially on anterior basal part, subhyaline, with ochraceous-brown veins, base of r_{4+5} with 4–6 setulae above and below, *r–m* almost at middle of discal cell, *m–m* slightly sinuous, hardly oblique. Calyptrae pale ochraceous grey, subopaque, with pale yellowish-grey border and pale golden fringe. Halteres dull reddish-yellow.—*Legs* slender, fore tibia with 2 *p*(*v*), 3–4 small *pd*, and a few very small *ad* setae interspersed in a row of stronger setulae ; mid femur with 2 *a* setae near middle, 2–3 *pv* on basal half and 2 (*p* and *pd*) preapicals, mid tibia with a strong *ad*, probably a *v*, and 2 *p* setae ; hind legs as in *lineaticollis* but *av* surface of femur with 3 *av* setae on basal half.

Length 8·4 mm.

Cape Province : Cape Good Hope (*Ch. Darwin*), ♂ type.

Apart from the different length of the proboscis and the accessory descending frontal seta, most of the characters distinguishing the present specimen from *taylori* and other species are female characters. However, dissection has proved that the type is actually a male, as the absence of proclinate orbital setae indicated. Nevertheless, it is quite possible that it is an intersex, and that the male has normally a narrower frons, weak marginals on the second tergite, etc.

LESKIA TAYLORI, sp. n., ♂ ♀

Pale ferruginous ; occiput, except for cerebrale and lower part, mesonotum, metanotum, most of sternopleura, hypopleura, pteropleura, and lower part of mesopleura fuscous in ground-colour, scutellum infuscated at base with the apical part translucent pale-testaceous ; abdomen pale ferruginous with

the fourth and third segments more orange and with a rather broad fuscous median vitta on anterior three segments and a roundish piceous spot at hind end of lateral surface of each segment round the pore of the lateral marginal, the media vitta complete on first two segments, 1/6–1/4 width of first segment, 1/3 to more than half width of segment at base of second segment but quickly narrowed to 1/3–1/5 width of segment behind, 2/5–3/5 width of segment near base of third, on which it is ovate, not or very narrowly reaching hind margin, second segment with a narrow basal band of whitish dust, third and lateral basal part of fourth more extensively dusted whitish-grey, vitta with more greyish-brown dust ; apical exposed part of each ventrite also piceous-black. Interfrontalia, palpi and antennae orange, third antennal segment fuscous at apex and margins ; legs pale testaceous, a narrow ring at tip of hind femur and the tarsi piceous.—*Head* rather densely dusted silver-white, posterior part of parafrontalia yellowish-dusted ; eyes bare ; frons of male at vertex a quarter (0·25–0·27) head-width, moderately dilated with concave sides to lunula, where it is less than two-fifths (0·35–0·38) head-width, interfrontalia slightly dilated to both extremities, more than half as wide again at middle in dorsal view as a parafrontale, the latter deeply sloping and in lateral view only little narrower at middle than the interfrontalia, with 12–15 inclinate setae, ocellars and inner verticals long and rather fine, outer verticals usually hardly differentiated ; frons of female at vertex one-third head-width, moderately dilated with almost straight sides to lunula where it is nearly one-half (0·46) head-width, interfrontalia as in male, but somewhat narrower than a parafrontale, the latter only moderately sloping outward with 8 frontal setae, the last two of which are mainly reclinate and the first two of which descend on parafacialia, outer part with 2 proclinate setae—the anterior one much the stronger—on posterior half and a few proclinate black hairs, ocellars fine and moderately long, inner verticals strong, outer ones weak ; parafacialia only slightly wider than, jowls almost twice as wide as, third antennal segment. The latter falling short of mouth-margin by twice (♂) or fully (♀) its own width ; arista slender, shortly pubescent.—*Thorax* densely dusted pale-grey, the disc often more cinereous-grey, with a pair of faint linear *prst* vittae and a suffused narrow streak before and behind suture representing the outer vittae ; 2–3 +1–2 *acr*, the third *prst* and anterior *post* pair if present weak and the former close to suture, 3 +3 strong *dc*, 0 +3 rather strong *ia*, *pra* weaker than second *npl*, notopleura haired ; subapical and basal scutellars equal, the former slightly less widely separated from each other than from the basal ones, apical setae very fine and upcurved, preapical discals rather strong ; anterior mesopleural rather long and conspicuous, 2 +1 *stpl*, the lower one somewhat weaker than the anterior one.—*Abdomen* elongate-subconical, in female somewhat spindle-shaped, anterior two segments with a strong lateral marginal, first in male without, in female with, a pair of weak median marginals, second in male with weak, in female with strong, median marginals, third with a row of very strong, fourth with a row of strong, marginals, fourth also with 1–2 moderately strong lateral discals.—*Wings* greyish subhyaline with dark-brown veins, base of r_{4+5} with about 4 setulae ; r_1 rather straight, much exceeding level of *r–m*, which lies well beyond middle

of discal cell, *m–m* somewhat sinuous and strongly (♂) or moderately (♀) oblique. Calyptrae greyish subhyaline with pale yellowish-grey border and whitish fringe. Halteres pale reddish yellow.—*Legs* very long and slender (fore tarsi about as long as abdomen) ; fore tibia with 2–3 small *pd* and 2–3 somewhat stronger *p* setae, mid femur with 2–3 *pv* setae near base, a *p* and a *pd* preapical and, in female, a strong submedian *a* seta, mid tibia with a strong *ad* and (1–) 2–5 small *p* setae ; hind femur on less than basal half with 3–5 not very strong *av* and 3–4 strong *pv* setae, near apical third with 2 *d* setae and beyond with a *pd* preapical, hind tibia with 1 *av*, 2–3 *pd* setae and an *ad* row of small setae of varying size which contains a rather strong seta beyond middle.

Length 6·5 (♀)–11·5 (♂) mm., of wings 6·9–9·8 mm.

Cape Province : Highlands, 28. ix.–x. 47, ex larva *Euthodope basiferella* (*J. S. Taylor*), ♂ type, 4 ♂ 2 ♀ paratypes (3 paratypes returned to Mr Taylor).

LESKIA PALLIDITHORAX, sp. n., ♂

Pale testaceous, densely dusted yellowish white, ground-colour of disc of mesonotum, of metanotum and of lower part of sternopleurae and hypopleurae infuscated ; occiput infuscated except for lower part and for upper part of cerebrale ; abdomen with the posterior segments orange, the third infuscated and rather densely dusted yellowish white with dark dots at base of setae and hairs, fourth pale dusted towards sides and base, first and second with a rather narrow piceous-brown median vitta which, like the extreme base and to some extent the sides, is pale dusted, this dust on median vitta interrupted by dark dots at the base of setae and hairs, first to fourth segments each with a small round piceous-brown spot on hind margin of lateral surface, apical exposed part of ventrites with a similar spot. Interfrontalia, palpi and antennae pale orange, third segment of the latter with the apical margin narrowly infuscated ; proboscis testaceous ; legs pale testaceous with piceous-brown tarsi, hind femur with a narrow piceous apical ring.—*Head* densely dusted yellowish white ; eyes practically bare ; frons at vertex slightly over a quarter (0·26–0·27) head-width, moderately dilated to lunula where it is less than two-fifths (0·36–0·37) head-width, sides straight in more than posterior half, interfrontalia slightly dilated anteriorly, hardly so behind, almost as wide at middle as a parafrontale, the latter with 9–12 inclinate setae, ocellars and outer verticals rather fine and not very long, inner verticals moderately strong ; parafacialia not or slightly wider than, jowls about twice as wide as, third antennal segment ; black setulae of postocular row not reaching lower third of head which is devoid of black hairs or setae except for 3–4 peristomal setae, the vibrissae and the setulae below and just above these. Third antennal segment falling short of mouth-margin by half its own width again ; arista slender, pubescent.—*Thorax* with a pair of faint linear dark paramedian vittae which exceed suture, an elongate fuscous *prst* and *post* streak representing the outer vittae and, in posterior view, a faint narrow suffused median vitta from shortly behind suture to level of *prsc* ; 2–3+1–2 *acr*, only the *prsc* pair strong, other setae as in *taylori*, but first *ia* weak ; scutellar, mesopleural and sternopleural setae as in *taylori*.—*Abdomen* apart from the coloration as in

male of *taylori*, fourth segment hardly more than a third length of third.—*Wings* subhyaline with testaceous to light-brown veins ; *r–m* at middle of discal cell, *m–m* somewhat less oblique, otherwise as in *taylori*. Calyptrae and halteres as in that species.—*Legs* rather slender and long (fore tarsi about three-fourths length of abdomen) ; fore tibia with 2 *p* and 2–3 very small *pd* setae ; mid femur with 2 short *pv* setae near base, mid tibia with *v* seta, a strong *ad* and 2 *p* setae (in addition 2–3 very small more *pd* setae) ; hind femur on less than basal half with 2–3 *av* and 3 long and strong *pv* setae, its other setae and the hind tibia as in *taylori*.

Length 8·1–8·9 mm., of wings 6·8–7·8 mm.

SUDAN : Delami, N.M.P., 21. vi. 27, rock shade (*W. Ruttledge*), ♂ type, 5. vi. 27, rock shade (*W. Ruttledge*), 1 ♂ paratype.

LESKIA LINEATA, sp. n., ♂ ♀

Pale ferruginous, metanotum, disc of mesonotum and most of occiput infuscated, lower parts of pleurae only darker dull ferruginous ; abdomen pale testaceous with the fourth segment orange, anterior three segments with a narrow piceous median vitta, hind margins of anterior three segments narrowly browned to piceous, always dark at base of setae, third segment with a slightly broader piceous hind margin, which is continued on lateral surface and which may be narrowly interrupted outward to the median marginals, fourth segment with a moderately broad piceous hind margin on lateral surface only. Interfrontalia orange with piceous longitudinal grooves to wholly piceous, palpi and antennae pale orange, third antennal segment broadly browned apically, especially on outer surface, mentum piceous brown ; legs pale ferruginous with piceous tarsi, hind femur with a narrow piceous apical ring.—*Head* densely dusted yellowish white ; eyes practically bare ; frons of male at narrowest part at or slightly in front of vertex, one-fifth to one-quarter head-width, moderately dilated with concave sides to lunula, where it is one-third (0·31–0·34) head-width, interfrontalia narrowest at posterior third, slightly dilated to extremities, narrower than a parafrontale, the latter with about eight inclinate setae, which almost reach level of anterior ocellus, ocellars and verticals not very strong ; frons of female one-third head-width at vertex, moderately dilated with slightly concave sides to lunula where it is more than two-fifths (0·43) head-width, interfrontalia slightly dilated to extremities, about half as wide as a parafrontale, the latter with seven inclinate setae the last of which is somewhat isolated and almost as much reclinate as inclinate, outer part of posterior half of parafrontalia with 2 strong proclinate setae, and as in male, with some minute hairs, ocellars not very strong, inner verticals strong, outer verticals moderately strong ; parafacialia below middle slightly wider than, jowls almost twice as wide as, third antennal segment. The latter falling short of mouth-margin by more (♂) or slightly less (♀) than its own width ; arista slender, distinctly pubescent.—*Thorax* densely dusted with two pairs of well-defined fuscous vittae, the paramedian ones linear, narrowly, interrupted at suture and reaching level of first *post dc*, the outer ones narrow, rather broadly interrupted at suture and fading out at second *post dc*, but in a posterior view broadened inwards to reach the *dc* and extended

behind to last *post dc*, in addition in posterior view with a suffused dark *post* median vitta ; 2–3 +1–2 *acr* of which only the second *prst* and the *prsc* pairs are strong, other setae as in *taylori*, but first *ia* absent or weak ; basal scutellars somewhat shorter than subapical ones, lateral ones rather strong (but in ♂ paratype indistinct), apical ones absent, preapical discals rather strong ; anterior mesopleural well developed, 2 +1 *stpl*, lower anterior one much the weakest.—*Abdomen* of male elongate-paraboloid, in female elongate-ellipsoidal, fourth segment more than half as long as third ; first segment with a pair of median and lateral marginals, second with a pair of median and lateral marginals, third and fourth with a row of strong marginals (stronger on third), the paramedian pair on the fourth segment slightly shifted forward.—*Wings* unusually narrow, thrice (♂ 3·1x, ♀ 2·75x) as long as wide, brownish subhyaline with brown veins, base of r_{4+5} with some very small setulae on node ; venation, calyptrae and halteres as in *taylori*, but *r–m* at, or even slightly basad of, middle of discal cell.—*Legs* as in *taylori* ; fore tibia with only 2 *p* setae and some very small *ad* setulae ; mid femur with a rather short but strong *pv* seta towards basal fourth, 2 *p* preapicals, and in female 2 *a* setae near middle, mid tibia with 1 *v*, 1 strong *ad* and 2 *pd* (♂) or *p* (♀) setae ; hind femur with 2–3 *av* and 2–3 *pv* setae on basal half, the distal *pv* the longest of them, and an *av* preapical at apical sixth, hind tibia with 2–3 small decumbent (♂) or 1 moderately strong (♀) *av*, 2 *pd* and 2 *ad* setae, the latter forming part of a row of *ad* setulae, the proximal seta being only moderately stronger than these.

Length 9·5–10·9 mm., of wings 9·0–11·0 mm., the smaller measurements referring to the female.

Uganda : Kampala, 11. i. 35 (*H. Hargreaves*), ♂ type (in B.M.). Belgian Congo : Bambesa, 11. v. 38 (*P. Henrard*), 1 ♂ paratype (in Mus. Tervueren), 6. vi. 37 (*J. Vrydagh*), 1 ♀ paratype (in B.M.).

LESKIA PRUINOSA, sp. n., ♂

Pale ferruginous with pale-testaceous abdomen ; parafrontalia, occiput, disc of mesonotum, metanotum, third abdominal segment and suffused spots on ventral part of hypopleura and of sternopleura fuscous in ground-colour though pale-dusted, fourth abdominal segment apparently wholly reddish-orange (in type largely irregularly piceous probably as a result of post-mortem rot) ; proboscis chestnut-brown, palpi and antennae orange, third antennal segment fuscous except for the extreme base, legs pale ferruginous with strongly browned tarsi.—*Head* densely dusted pale gold in front and below, parafrontalia and occiput fuscous, except on cerebrale, with pale golden-grey dust, interfrontalia dark brown ; eyes practically bare ; frons at vertex slightly more than one-sixth (0·18) head-width, rather strongly dilated with moderately concave sides to lunula where it is more than one-third (0·36) head-width, interfrontalia evenly somewhat dilated to lunula, appearing about as wide as a parafrontale, these, however, much wider anteriorly in lateral view, as they slope almost vertically in front, with about 15 inclinate setae, which extend from ventral level of first antennal segment almost to level of anterior ocellus, ocellars and inner verticals subequal to the inclinate setae,

outer verticals distinct but subequal to the postocular setulae ; parafacialia more than half as wide again, jowls fully twice as wide, as third antennal segment. The latter falling short of mouth-margin by twice its own width ; arista slender, with very short decumbent pubescence.—*Thorax* densely dusted pale-gold yellow to greyish white, disc browned, with linear fuscous paramedian vittae, which hardly reach level of first *prst dc*, and very narrow incomplete and broadly interrupted outer vittae, in addition in posterior view with an indistinctly darker median vitta from suture to scutellar suture ; 3+2 *acr* which are very weak except for the moderately weak *prsc*, 3+3 strong *dc*, 1+3 *ia*, the *prst* and first *post* of them very weak, the other two strong, *pra* weaker than second *npl*, notopleura haired ; subapical scutellars straight and parallel, somewhat stronger than the basal ones and almost as widely separated from each other as from these, 2 pairs of fine preapical discals ; anterior mesopleural duplicated, very weak, anterior lower *stpl* rather strong, anterior upper strong, posterior very strong.—*Abdomen* elongate-subconical with narrowly truncated apex, anterior two segments with a light brown-dusted—in the basal excavation gold-dusted—median vitta, which is gradually dilated behind, so as to occupy hardly a fifth of width of segment at base of first but almost the entire width at apex of second segment, third wholly dusted light brown with a faintly darker, more thinly dusted longitudinal streak towards sides, both second and third segments with a narrow faint and suffused darker median vitta ; fourth segment with some bright yellowish-white dust laterally at base and very thin pale-grey dust on disc ; first segment with a pair of strong lateral marginals, second with strong median and lateral marginals, the median ones separated by almost a third width at that level, third and fourth with a row of strong marginals (less so on fourth).—*Wings* as in *lineata*, *m–m* somewhat more sinuous and oblique. Calyptrae brownish subhyaline with ochraceous border and golden fringe. Halteres pale reddish yellow.—*Legs* very slender (fore tarsi three-quarters length of abdomen), fore tibia only with 2 *p* setae and on basal half a row of very small *ad* setulae ; mid femur with 2 *pv* setae in basal fourth, an *a* seta at two-fifths (always ?) and 2 *p* preapicals, mid tibia with 1 *v*, 1 rather strong *ad* and 2 *pd* setae ; hind femur with about 3 *av* and *pv* setae on basal half and an *av* preapical at apical sixth, hind tibia with 1 *av* 2–3 *pd*, of which only the distal one is strong, and a row of *ad* setae from base to beyond middle, which contain 4–5 gradually stronger setae, one shortly beyond middle being much the strongest.

Length 11·6 mm., of wings 11·0 mm.

UGANDA : Namwamba Valley, Ruwenzori Mts., 6500 ft. (*F. W. Edwards*), ♂ type.

LESKIA PALLIVENTRIS, sp. n., ♂

Pale ferruginous with fuscous occiput, except for lower part, fuscous thorax including scutellum but excluding shoulders, postalar callosities and pleural sutures ; apical half of third abdominal segment suffusedly browned, fourth suffusedly darker at base, both with a piceous spot at hind margin of lateral surface at the base of the exactly lateral marginal. Palpi and antennae orange, third antennal segment broadly infuscated apically and dorsally ;

legs pale ferruginous, hind femur with a small fuscous spot on *d* surface of tip ; tarsi gradually more strongly browned to piceous towards tip.—*Head* densely dusted yellowish-white, ground-colour of upper part of parafrontalia suffusedly infuscated, interfrontalia rufous brown ; eyes bare ; frons at vertex a quarter head-width, almost parallel-sided in posterior half but rather strongly dilated with concave sides anteriorly to lunula where it is well over a third (0·37) head-width, interfrontalia somewhat dilated in more than anterior half, about as wide as a parafrontale, the latter with 11 inclinate setae, which extend from ventral level of first antennal segment to about level of anterior ocellus, the last 1–2 being stronger and reclinate, ocellars subequal to the inclinate setae, inner verticals strong, outer ones indistinct ; parafacialia two-thirds as wide, jowls half as wide again, as third antennal segment. The latter rather broad, only twice as long as wide and half as long again as second, falling short of mouth-margin by slightly more than its own width, arista very shortly pubescent, hardly more than pollinose. Mouth-margin much less projecting than in all the preceding species, vibrissae at an only slightly higher level (by about twice width of their pore).—*Thorax* rather densely dusted whitish-grey, vittae as in *pruinosa*, but median vitta fuscous-black and conspicuous in posterior view, scutellum with a shifting dark spot on disc and at base of lateral surface ; 1 +1 strong *acr*, 3 +3 strong *dc*. 0 +3 rather strong *ia*, *pra* distinct but much smaller than second *npl*, notopleura with only very few hairs ; basal and subapical scutellars subequal, the latter half as widely separated from each other as from the basal ones, apical scutellars only slightly longer than the longest hairs, decussate, one pair of rather strong preapical discals ; anterior mesopleural conspicuous, 2 +1 *stpl*, lower one rather weak.—*Abdomen* oblong-ovate ; second to fourth segments with a narrow basal band of silver-white dust, this band slightly wider on third segment and extended over half length of segment on lateral surface of fourth ; first segment with a rather weak lateral marginal, second with a pair of strong median and moderately strong lateral marginals, third and fourth with a row of strong marginals.—*Wings* greyish subhyaline with light-brown veins, setulae on underside of r_{4+5} restricted to node, on upper side extending more than halfway to *r–m* ; r_1 somewhat exceeding level of *r–m*, which lies slightly beyond middle of discal cell, *m–m* slightly sinuous and not very oblique, reaching *m* about halfway between *r–m* and bend, the latter broadly rounded, R_5 very narrowly open, almost closed in margin. Calyptrae greyish subopaque, lower one somewhat suffused ochraceous-brown on inner margin, rest of margin pale greyish-ochraceous with whitish fringe. Halteres pale reddish-yellow.—*Legs* moderately slender, fore tibia and mid femur and tibia with setae as in *pruinosa*; hind femur with 3 *av* and 2 strong *pv* setae on basal half and 2 *av* preapicals, hind tibia with 1 rather strong *av*, 2 *pd*, the distal of which is strong, and 3–4 successively stronger *ad* setae, which alternate with the setulae of the *ad* row.

Length 5·6 mm., of wings 4·5 mm.

NATAL : S. of Durban, 16. x. 31 (*T. D. A. Cockerell*), ♂ type.

By its less projecting mouth-margin, which lies only slightly below the vibrissal level, the more extensively setulose base of r_{4+5}, the almost closed R_5 and the much less widely separated subapical scutellars this is a rather aberrant

species among the African forms, the formation of its mouth-margin being similar to that of the British species. In the type the upper part of the occiput is pale-haired with only a few black setulae behind the postocular row. In a female from S. RHODESIA : Pretoria, xi. 41, submitted by the Department of Research and Specialist Services, S. Rhodesia, all the setulae of the occiput are black and stiff, the setulae on r_{4+5} almost reach r–m, and the abdomen has a moderately broad piceous median vitta with somewhat concave sides on the first three segments, this median vitta spreading out sideways along front and hind margins of the intermediate segments, reaching lateral surface except at front margin of second segment, fourth wholly piceous. This female belongs either to the present species or to a very closely related one, the male of which is so far unknown.

COLOLESKIA Villeneuve 1939

Cololeskia Villeneuve 1939, *Bull. Mus. Hist. nat. Belg.* **15** (48) : 2.

COLOLESKIA PALLIDA Villeneuve

Cololeskia pallida Villeneuve l.c. : 3.

Type : S. RHODESIA : Gota Gota, Uruagwe, in B.M.

The mouth-margin does not project between the vibrissal angles, so that the genus would be traced to Thelairini in the key to the tribes. The vibrissal angles are hardly produced, and the head is much shorter there than at lunula ; its shape and the general appearance of the fly are otherwise quite those of the Leskiini. The prosternum is bare ; 3 *post ia* ; *pra* short ; the basal dorsal excavation of the first abdominal segment reaches the hind margin ; width of jowls one quarter of the greatest diameter of the eye, combined length of second and third antennal segments half as long again as width of jowls. Villeneuve describes the vertex as being half as wide as an eye ; the narrowest part of the frons, which lies at the vertex, is just over a quarter (0·27) head-width, which means that the vertex is about three-quarters the width of an eye when measured. Parafrontalia and outer part of interfrontalia with fine gold-yellow hairs. The type was returned by Villeneuve to Alex. Cuthbertson and recently presented to the B.M. by Mr J. A. Whellan of the Department of Science and Research, S. Rhodesia.

SARRORHINA Villeneuve 1936

Sarrorhina Villeneuve 1936. *Bull. Mus. R. Hist. nat. Belg.* **12** (4) : 1.

OCYPTEROMIMA Townsend 1916

Ocypteromima Townsend 1916 (Feb.), *Ann. Mag. nat. Hist.* (8) **17** : 175 (genotype *polita* Tns. l.c. original designation : 1939, Man. Myiol. **9** : 231) ; Curran 1927, *Bull. ent. Res.* **17** : 340 ; Villeneuve 1939, *Bull. Mus. Hist. nat. Belg.* **15** (48) : 4.

syn. *Pyrrhosiella* Villeneuve 1916 (8 Dec.), *Ann. S. Afr. Mus.* **15** : 501 (genotype *cingulata* Villen. l.c. 503 (monotypic)).

sbg. *Asboleola* Villeneuve 1916 (8 Dec.), *Ann. S. Afr. Mus.* **15** : 503 (genotype *elegans* Villen. l.c. 504) (fixation Tns. 1936 M.M. **4** : 66).)

Pyrrhosiella and *Asboleola* were considered by Villeneuve to be different genera, but the proclinate orbital setae, which supply the main difference,

have since been found in many other groups to be not of generic importance. Since specimens of (*Pyrrhosiella cingulata* Villen.=) *Ocypteromima polita* Tns. with two proclinate orbitals are not rare (and in fact are found among Villeneuve's paratypes) in my material, it appears better to unite the three known species of this group in one genus. In two of the specimens of *O. polita* there are even a few more erect stronger setulae on either side of the disc of the fourth tergite (in combination with two well-developed proclinate orbitals). The pale, hardly smoky wings and shorter antennae clearly reveal that they belong to *O. polita*.

Key to the Ethiopian species of Ocypteromima

1 (2). Wings slightly smoky but never infuscated. Fourth abdominal segment without discal setae. Para frontalia with 1 or, less often, 2 strong proclinate setae (♂ ♀). Third antennal segment not quite reaching level of vibrissae. Wing-length 5–7 mm.(sbg. *Ocypteromima* s. str.) ..... *polita* Tns.

2 (1). Wings conspicuously infuscated, especially on apical half. Fourth abdominal segment with a row of distinct discal setae across median line. Parafrontalia without (♂) or with two strong (♀) proclinate setae. Third antennal segment reaching level of vibrissae. Wing-length 7–10.5 mm. (sbg. *Asboleola* Villen.) ..... *elegans* Villen. . . . 3.

3 (4). ♂ : Wings less than thrice as long as wide (about 2.7 ×) ; basal two-fifths or more almost hyaline, except in 1st *C*, 2nd *C* and *Sc*, greater apical half infuscated, more strongly so along the veins ..... *elegans elegans* Villen.

4 (3). ♂ : Wings more than thrice as long as wide (about 3.3 ×) ; almost evenly infuscated..... *elegans angustipennis* Villen.

OCYPTEROMIMA (s. str.) *POLITA* Townsend

Ocypteromima polita Townsend 1916, *Ann. Mag. nat. Hist.* (8) **17** : 175 ; Curran 1927, *Bull ent. Res.* **17** : 340.

syn. *Pyrrhosiella cingulata* Villeneuve 1916, *Ann. S. Afr. Mus.* **15** : 503, fig. 7.

Typical localities : PORTUG. E. AFRICA : Lorenzo Marques ; of *cingulata* : NATAL : Durban ; NYASALAND : Mt. Mlanje ; FRENCH CONGO ; BELGIAN CONGO ; SIERRA LEONE ; GOLD COAST ; NIGERIA. In B.M. from : TANGANYIKA : Old Shinyanga, 25. vi. 52 (*E. Burtt*), 1 ♀ ; Morogoro, 5. vi. 26 (*A. H. Ritchie*) ; Uluguru, Morogoro (*A. G. Wilkins*) ; UGANDA : Nyakasura, x. 31 (*J. F. Shillito*) ; Entebbe, 15. ii. 10 (*G. C. Gowdry*) ; Wadalai, xi. 04, swamp (*E. D. W. Greig*). NYASALAND : Chiromo, 8. viii. 14, in home (*R. C. Wood*) ; Ruo, 15. viii. 14, on wild flower in garden (*R. C. Wood*) ; Cholo (*R. C. Wood*) ; Dowa Dist. (*J. B. Davey*) ; Blantyre, 16. vi. 14 (*J. B. Davey*). Natal : Umbilo, 26. v. 13 (*L. Bevis*). PORTUG. E. AFRICA : Mozambique, vi. 32 (*J. Ogilvie*). ZANZIBAR : i–ii. 25 (*H. J. Snell*). KENYA : Nairobi, vii. 30 and 37 (*V. G. L. van Someren*). UGANDA : Busongoro, Toro, xii. 27 (*G. D. H. Carpenter*). ANGOLA : Lobito Bay, 19–20. vii. 31 (*J. Ogilvie* and *Mrs L. Ogilvie*). GOLD COAST : Aburi, 1912–13 (*W. H. Patterson*), 1 ♀ labelled " *Pyrrhosiella cingulata* Villen. Typ.", same data paratypes ; Obuasi, Ashanti, 18. vi., 21. vi., 15. vii., 28. vii. 07 (*W. M. Graham*) ; Accra, vii. 22 (*J. W. S. Macfie*). N. NIGERIA :

Zungeru, xi. 10 (*J. W. S. Macfie*). SIERRA LEONE : Bendu, 14. viii. 12 (*J. J. Simpson*), 1 ♀, also labelled in Villeneuve's writing " *Pyrrhosiella cingulata* Villen. Typ." and with an additional label written by Villeneuve " Typus ", herewith selected as the type of *cingulata* ; Freetown, 13 and 28. viii. 99 (*E. E. Austin*). N. NIGERIA : Eruku, viii. 12 (*J. W. Scott-Macfie*), Baro, x. 10 (*Ingram*), 1 ♀ paratype ; Ilorin, 16. vii. 12 (*J. W. Scott-Macfie*), 1 ♀ paratype. S. NIGERIA : Benin City, 20. iii. 10 (*J. J. Simpson*) ; Oshogbo, 16. iii. 10 (*J. J. Simpson*), 15. viii. 10, in house (*T. F. G. Meyer*), 1 ♀ paratype ; Ilesha, 4. iii. 10 (*J. J. Simpson*) ; Ibadan, 22. vii. 13 (*W. A. Lamborn*), 1 ♀ with 2 proclinate orbital and erect setulae on fourth tergite. Seen from : KENYA : Nyeri (S.) x. 48 (*V. G. L. van Someren*) ; Teita Hills (S.), viii. 47 (*V. G. L. van Someren*) ; Bura, Teita, 5000 ft., ii. 39 (*V. G. L. van Someren*). UGANDA : Bwamba, Ruwenzori, vii–viii. 46 (*G. R. C. van Someren*). BELGIAN CONGO : Stanleyville, 15 and 19. viii. 28 (*A. Collart*) ; ii. 26 (*J. Ghesquière*) ; Terr. de Banningville, riv. Lune, Mpo-, 1945 (*Dr Fain*) ; Libenge, 1933 (*J. Van Gils*) ; Mayumbe : Sumbi, 30. iv. 26 (*A. Collart*) ; Mayumbe : Ganda-Buku, 1. viii. 26 (*A. Collart*) ; Uelé (*Rodhain*) ; Gwanga (Likimi) 20. viii. 27 (*A. Collart*) ; Bas Congo : Mangembo, 1932 (*Zwolakowski*) ; Leopoldsville 1911 (*Mouchet*) ; Mongbwalu (*Kilo*) 1937 (*Mme Schaitz*) ; Bamania xii. 28 (*M. Bequaert*). SIERRA LEONE : Njala, xi. 35 (*E. Hargreaves*). MADAGASCAR : Anjavibe, i. 52 (*N. L. H. Krauss*) (Inst. Sci. Madag.). NIGERIA : Olokemeji, Ibadan (*Bridwell* collection, U.S. Nat. Mus.).

OCYPTEROMIMA (*ASBOLEOLA*) *ELEGANS* Villeneuve

Asboleola elegans Villeneuve 1916, *Ann. S. Afr. Mus.* **15** : 504 ; Townsend 1939, Man. Myiol. **9**, p. 209.

Typical locality : Mt. Mlanje, Nyasaland (type and numerous other ♂♂ and ♀♀ collected by S. A. Neave on Mt. Mlanje 22–27. viii. 13, 17. x. 13, 16. ix. 13 and 2. ix. 13).

Seen from : KENYA : Rabai, v. 28 (*V. G. L. van Someren*), 1 ♀ ; Teita Hills (S.), viii. 47 (*V. G. L. van Someren*), 1 ♀. BELGIAN CONGO : Kapanga, x. 32 (*F. G. Overlaet*), 1 ♀ ; Abumombazi, 18–26. ii. 32 (*H. J. Brédo*), 1 ♀ ; Katompe, Lomami, 20. xii. 23 (*M. Bequaert*), 1 ♀ ; Epulu, Ituri, 18. v. 36 (*L. Lippens*), 1 ♀.

The females from Belgian Congo and perhaps Kenya belong probably to ssp. *angustipennis*, see below.

OCYPTEROMIMA (*ASBOLEOLA*) *ELEGANS ANGUSTIPENNIS* Villeneuve

Asboleola angustipennis Villeneuve 1916, *Ann. S. Afr. Mus.* **15** : 504 ; Townsend 1939, Man. Myiol. **9**. p. 210.

Typical localities : SIERRA LEONE : Mendikama, 20. viii. 1912 (*Jas. J. Simpson*), 1 ♂ without legs, labelled "*Asboleola angustipennis* Villen. Typ.", in Villeneuve's writing, is herewith selected as the lectotype ; Juru, 21. viii. 1912 (*Jas. J. Simpson*), 1 ♂, labelled " *angustipennis* Villen. Type. ♂ " in Villeneuve's writing. UGANDA : Entebbe (*C. C. Gowdey*). In B.M. further from SIERRA LEONE : Lake of Life nr. Kotobo, 23. xii. 13 (*J. W. Scott Macfie*), 1 ♂ ; Nigeria Bende, 5. x. 50 (*J. L. Gregory*), 1 ♂. GOLD COAST : Obuasi, Ashanti,

20. vi. 07 (*W. M. Graham*), 1 ♂, ♀, 9. vi. 07 1 ♀, 31. viii. 07 1 ♂, 8. i. 08 1 ♂. Seen from : BELGIAN CONGO : Mangembo, Bas Congo, 1932 (*Zwolakowski*), 1 ♂ ; Moto, Haut-Uelé, iv–v. 23 (*L. Burgeon*), 1 ♂.

The two male paratypes from UGANDA : Entebbe, 1913 (*C. C. Gowdey*) have the wings 3·5 times as long as wide but the basal part pale and the apical part more unevenly infuscated, like *O. elegans*.

Townsend (1939 : 210) believed that there may be several species but that "*angustipennis* Vill. represents the normal male". This can only mean that he considered it as the "normal male" of *elegans*. As will be seen from the material listed above, the male of *elegans* is only known from Nyasaland, and *angustipennis* is only known from W. Africa, the Congo basin and, in somewhat transitional specimens, from Uganda. *O. angustipennis* is thus certainly not the male of the typical *elegans* (i.e. of the Mt. Mlanje form), but it is probably the male of the indistinguishable Congo females of *elegans* and perhaps also of the Kenya females. This would make the two forms conspecific, *elegans elegans* being the south eastern race and *elegans angustipennis* the western one, which extends into Uganda and perhaps Kenya in a somewhat transitional form.

11. ECHINOMYINI

A key to the sub-tribes has been given on p. 320. The Linnaemyina and Echinomyina are well represented in the Ethiopian region, but of the Ernestiina only a few aberrant species have been found.

(a) Ernestiina

The large genus *Ernestia* does not seem to occur South of the Sahara and of *Brachelia* only few specimens are known, all from South Africa. Three specimens from Kenya belonging to this sub-tribe are at hand, and represent a new genus.

Key to the Ethiopian genera of Ernestiina

1 (2). Both basal segments of arista short ; second and third antennal segments subequal in length. Frontal setae not reaching apical level of second antennal segment. 2+1 *stpl.* 3 *post dc.* 2+3 *acr*, the last *prst acr* anterior to level of last *prst dc.* Proboscis undusted, slender with small labella ..... *Brachelia* R.-D.

2 (1). Second segment of arista more than a third as long as third ; third antennal segment thrice as long as second. Frontal setae descending below base of arista. 1+1 *stpl.* 4 *post dc.* 3+3 *acr*, the last *prst acr* behind level of last *prst dc.* Proboscis brown-dusted, short and stout, labella large, almost as long as mentum ..... *Bracheliopsis* gen. n.

BRACHELIA Robineau-Desvoidy 1830

syn. *Pseudoloewia* B.B. 1889, 68 (=136) ; 1893, 96 (=184) ; 127 (=215) and 148 (=236).

Extremely closely related to *Ernestia*, from which typical specimens differ by the shortly petiolate or closed cell R_5, but this can be open in *leocrates* (see Villeneuve 1916, 501). Third antennal segment about as long as second ; second segment of arista hardly longer than wide. Frontal setae descending

to, or slightly beyond, middle level of second antennal segment (almost to level of base of arista in *westermanni*) ; parafacialia bare except close to the descending setae. Cruciate apical scutellars and costal spine well developed. Second and third abdominal segments with median marginals and discals, the latter in 2–3 pairs. The chaetotaxy of the thorax of *westermanni* has never been described, *leocrates* has 2 +3 *acr* (the last *prst* pair close to suture absent) and 3 +3 *dc*, as already stated by Villeneuve (1916, 501), who gave a good description of this species.

Key to the Ethiopian species of Brachelia

1 (2). 13–17 mm. Black to bluish-black, with thin whitish pollinosity, apex of the fourth abdominal segment reddish ferruginous. Tergites 2 and 3 with about three pairs of discals each ..... *westermanni* Wied.

2 (1). 7–10.5 mm. Abdomen largely dull testaceous with a suffused fuscous median vitta. Tergites 2 and 3 with two pairs of discals each (one near base, the other near middle)..... *leocrates* Walk.

BRACHELIA WESTERMANNI Wiedemann

Tachina westermanni Wiedemann 1819, 23 ; 1830, 291.
syn. *Loewia sycophanta* Schin. 1868, 323.
Pseudoloewia sycophanta Schin., Brauer and Bergenstamm 1889, 68 (=136) ; 1893, 96 (=184).
Brachelia sycophanta Schin., Townsend 1932, 42 ; 1939, 223.
Brachelia westermanni Robineau-Desvoidy 1830, 61.
Brachelia westermanni Wied., Brauer and Bergenstamm 1893, 53 (=141), 96 (=184).

Tachina westermanni Wied. and *Pseudoloewia sycophanta* Schin. were synonymized in 1893 by Brauer and Bergenstamm on the basis of a Wiedemann type in the Winthem collection and of the Schiner type, both in the Vienna Museum. In 1931, Townsend discovered that typical specimens in the Westermann collection (Museum Copenhagen) differed from *Pseudoloewia sycophanta* and belonged actually to the Calliphoridae. Proceeding on the assumption that the specimen first cited by Wiedemann is always to be considered the type (Townsend 1932, 67) he made *westermanni* in coll. Westermann (" In Westermann's und meiner Sammlung ") the type of a new calliphorid genus *Africomusca* Townsend 1932, 441. It is perfectly obvious from Wiedemann's two descriptions that they were not based on the species to which Townsend assigned the name *westermanni* Wied. This can be seen from the following comparison of Wiedemann's (1819 and 1830) and Townsend's (1932 and 1937) descriptions (p.92).

In the face of these important discrepancies between Wiedemann's descriptions and the specimens seen by himself, Townsend was not justified in declaring one of them to be the holotype in contradiction to the typical specimen in the Wiedemann-Einthem collection on which Brauer and Bergenstamm based their statements. Townsend himself later (1937, Man. Myiol. **5**, p. 134) discusses these discrepancies between Wiedemann's description (and in fact Wiedemann's basic concept of the genus *Tachina*) and the specimens studied by himself and believes that they may be due to " a blunder of species labelling in the Westermann collection ". The solution of the problem lies in the fact that the Copenhagen Museum possesses not only the two typical specimens

	Wiedemann	Townsend
Third antennal segment compared with second	nicht langer (1819, 1830)	3 times as long
Arista	nacht (1830 : 280)	Long plumose on basal three-fifths
Palpi	rostgelb (1819, 1830)	Black (since not mentioned as differing from the black coloration)
Eyes of male	Stirnmitte schwarz 1819 ; Stirn schwarz 1830, i.e. eyes more or less separated	Nearly contiguous

now in coll. Westermann studied by Townsend, which are Calliphoridae, labelled in Westermann's writing, and do not fit the descriptions, but also a third, which fits them perfectly and which is labelled in Wiedemann's own writing " *Westermanni* Wied. Cap. bon. sp. Westermann ' (whilst the label of the other two specimens reads " *T. westermanni* Wied. Cape Good Hope Jan. 1817 "). It is *probable* from his descriptions that Wiedemann knew all three specimens besides the one in his own collection and now in Vienna, since the description of the antennae and palpi fits among the Westermann material only the specimen without a date of capture, and since on the other hand " Januario " is mentioned in the 1819 description. It is not possible, however, that the classification of the species in *Tachina* and the data in the description are due to anything but a close study of the specimen labelled by Wiedemann himself. There remains the question whether an irrevocable decision has been made by a valid designation of a type, and in 1936 (p. 134) Townsend maintains to have effected this in 1931. However, in this paper Townsend only *lists* a " male Ht and male Pt " as present in the Westermann Collection, without stating in this paper (or any other paper belonging to that series) that he proposes to *designate* types. Nor could a wholesale selection of types without comparison with the descriptions be acceptable and valid. I therefore select the specimen in the Copenhagen Museum which is labelled in Wiedemann's handwriting " *Westermanni* Wied. Cap. bon. sp. Westermann " as the type of *Brachelia westermanni* in agreement with Wiedemann's text and Robineau-Desvoidy's and Brauer and Bergenstamm's identifications. (The species studied by Townsend is very similar to *Calliphora majuscula* Villen. 1915, described as a *Pericallimyia* (=*C. flavicuada* Mall. 1925) but differs in having a pair of discals on each of the intermediate abdominal segments).

Known only from the *Cape*.

BRACHELIA LEOCRATES Walker

Tachina (*Ernestia*) *leocrates* Walker 1849, 745.
n. syn. *Eriothrix experrectus* Villeneuve 1916, 500.

Typical locality of *leocrates* : S. AFRICA ; of *experrecta* : CAPE. In B.M. : type of *leocrates* : NATAL : Weenen, xi–xii. 1923 (*H. P. Thomasset*), 1 ♂.

The Natal specimen is only 7 mm. long, and the subapical scutellars are as distant from apex as from base and as distant from the basal marginal seta as from the apical seta, whilst in the type they are somewhat closer to the apex and to the apical setae. There is only one slightly stronger seta on the occipital dilation (near middle of lower margin), whereas in the type there is a complete row of 6–7. In neither specimen are these as conspicuously differentiated as in *Bracheliopsis geniseta*. As there are no other obvious differences these deviations are for the time being considered as individual ones, the two single males being not sufficient for judging the systematic implications of the differences.

BRACHELIOPSIS, gen. n.

Rather stout and reminiscent of *Graphomyia maculata* Scop. *Head* rather strongly swollen behind ; eyes densely hairy ; frontal setae descending to level of arista, with one or more accessory setae to inner side of descending part of row, reclinate setae absent, female with 2 proclinate orbital setae and 1 prevertical (bent outward) ; ocellar setae diverging and proclinate ; anterior extremity of occipital dilation broadly rounded and with several strong setae ; vibrissae somewhat above mouth-margin, which projects very distinctly below and between vibrissal angles ; palpi normal, third antennal segment about twice as long as second, arista slightly elbowed, second segment long.—*Thorax* with well-developed setae, among them 1 +3 *ia*, *pra* subequal to second *npl*, slightly shorter than first *post dc*, 2 *npl* ; scutellum with very strong basal and diverging subapical setae, preapical discal and decussate apical setae, and distinct though rather weak lateral setae ; anterior mesopleural represented by several short spiky setae, 1 +1 strong *stpl* ; propleural depression and prosternum bare, main seta of pteropleura middle-sized, hardly exceeding apex of upper calyptra.—*Abdomen* stout (♀), dorsal basal excavation reaching hind margin of first segment, second and third with median and lateral marginals, fourth with a discal and marginal row.—*Wings* with bare veins, except for a few setulae on dorsal and ventral surfaces of the basal node of r_{4+5} ; R_5 open, bend of *m* acute, *m* continued as a dark fold, *m–m* reaching *m* rather close to the bend, sixth vein long but not reaching margin. Lower calyptra broadly rounded-truncate at apex, closely following outline of scutellum with its sinuous inner margin, inner apical angle slightly acute with narrowly rounded apex.—*Legs* of normal build, fore tarsi of female not dilated, tibiae rather richly setose, hind tibia with a very small *pv* apical seta, posterior surface of hind coxa bare.

Genotype : *Bracheliopsis geniseta* sp. n.

Rather closely related to *Micronychia* (=*Eversmania*), which differs by very strong lateral and weak apical scutellars, the absence of strong setae from the occipital dilation, a single anterior mesopleural, 3 *stpl*, a short second aristal segment, more deeply descending frontal setae, and in the female sex two pairs of prevertical setae and strongly dilated front tarsi.

BRACHELIOPSIS GENISETA, sp. n., ♀

Fuscous-black with rather dense greyish-white dust and shifting black

spots ; lower part of head, all of scutellum, postalar calli, posterior extremity of mesonotum, abdomen except for disc, and legs except for greater part of tarsi, dull ferruginous, apical half of femora somewhat infuscated, especially ventrally, thorax with four moderately narrow interrupted fuscous vittae, palpi orange, basal antennal segments rufous-brown, third fuscous with the base narrowly orange ; metatarsi browned at apices, second to fifth tarsal segments fuscous.—*Head* densely whitish dusted, lower part appearing somewhat pinkish, clypeus translucent pale testaceous, parafacialia with a semicircular dark shifting spot below the descending frontal setae, parafrontalia with similar spots outward and in front of the anterior, and behind the posterior, proclinate seta, cerebrale fuscous ; eyes densely hairy ; frons at vertex one-third (0·31–0·33) head-width, strongly dilated with almost straight sides to lunula where it is half as wide as the head, interfrontalia markedly dilated to both extremities, narrower at middle than a parafrontale, the latter rather broad, with 5–6 inclinate setae in addition to 3–6 descending ones, which are arranged in two rows, with 2 strong proclinate orbitals and with numerous small proclinate hairs which extend as far down on the parafacialia as the setae, ocellar and praevertical rather strong, outer vertical strong, inner verticals very strong and decussate ; parafacialia distinctly wider than, jowls fully thrice as wide as, third antennal segment ; vibrissae lying somewhat above level of mouth-margin. Third antennal segment falling short of mouth-margin by about twice its own width ; arista thickened almost to tip, second segment about as long as width of third antennal segment.—*Thorax* with some brown dust along the margins of the fuscous-black vittae, paramedian vittae narrowly interrupted at suture and reaching level of second *post dc*, outer vittae rather broadly interrupted, somewhat exceeding level of second *post dc* and continued as a more thinly-dusted dark-grey streak to the last *post* dc ; 3 +3 *acr*, the last *prst* one at suture, the last *post* one slightly anterior to level of last *dc*, 3 +4 strong *dc*, 1 +3 *ia*, the *post* ones strong, 2–3 *ph*.—*Abdomen* subcircular in outline (♀), disc somewhat browned and near median line broadly and suffusedly infuscated with a suffused brown-dusted median spot on intermediate segments, which broadens out along hind margins almost reaching lateral surface, median line overlaid by a complete linear vitta of silver-white dust, abdomen otherwise not very densely dusted greyish-white with small shifting dark spots ; first segment only with weak lateral marginals, second with a pair of closely approximated median marginals and a pair of lateral marginals, third with a pair of somewhat irregular median discals, a pair of median, and several lateral, marginals, fourth with a row of about eight strong discals and another of about six strong marginals.—*Wings* greyish subhyaline with light-brown veins, costal spine absent ; r_1 reaching much beyond level of *r–m*, which lies at middle of discal cell, apical cross-vein strongly concave behind, long and strongly oblique, R_5 thus rather narrowly extended to wing-margin, *m–m* somewhat sinuous, not very strongly oblique, reaching *m* at a point more than twice as distant from *r–m* as from bend. Epaulet rufous-brown, basicosta creamy yellow. Calyptrae greyish-white, subopaque, with concolorous border and fringe, border in places somewhat brownish. Halteres pale reddish yellow.—*Legs* rather stout, fore tibia with a

row of somewhat unequal *ad* and 2 *p* setae, in addition with an incomplete row of *pd* setulae ; mid femur with 2–3 *av* setae on basal third which lead over to a group of about 4 *a* setae at middle, *pv* surface with 4 rather strong *pv* setae on basal two-fifths and a fringe of weak *pv* setae from there to apex, mid tibia with an *av* seta, 4 successively stronger *ad*, 2 *p* setae and a row of stronger *ad* setulae, hind femur with 2–3 *pv* setae on basal two-fifths and a complete row of 7–8 *av* setae, hind tibia with 1 *av* and 3 successively stronger *pd* setae, the last of them only slightly beyond middle, in addition with a row of about 7 alternatingly weaker and stronger *ad* setae.

Length c. 8–9·3 mm., of wings 6·9–8·4 mm.

KENYA : Scott Agricultural Laboratories (i.e. Nairobi), 8. xi. 49 ex *Laphygma exempta* (*R. H. Le Pelley*), ♂ type, 1 ♀ paratype ; Nairobi Gardens, 4. x. 32 (*C. B. Symes*), 1 ♀ paratype (without abdomen and legs).

(b) Linnaemyina

1 (4). Parafacialia with some short setulose hairs at most on upper third to half.

2 (3). Hind tibia without a *pv* apical seta. Bend of *m* without an appendage or with a very short stump of a vein ; setulae on r_{4+5} far exceeding *r–m*. Apical scutellars very small and fine (though decussate). Eyes sparsely haired (at least in ♀). First and second tergites without median setae, third with only a pair of median marginals. Wings banded. ♂ : third antennal segment "fissicorn" ..... *Schizolinnaea* gen. n.

3 (2). Hind tibia with a distinct *pv* apical seta. Bend of *m* with a conspicuous appendage ; setulae on r_{4+5} seldom reaching *r–m*. Eyes densely hairy. ♂ : third antennal segment simple ..... *Linnaemya* R.-D.

4 (1). Parafacialia setulose on their entire length, setulae reaching level of vibrissa.

5 (6). R_5 open. Parafacialia with two rows of setulae. Proboscis shorter than height of head ; palpi very distinct. First segment of arista normal, very short. Second and third abdominal segments each with a pair of discals. Pteropleural about as strong as the anterior *stpl*..... **Plagiocoma* Villen.

6 (5). R_5 long-petiolate, the stalk more than twice as long as *r–m*. Parafacialia with one row of setulae. Proboscis much longer than height of head ; palpi vestigial. First segment of arista somewhat longer than the elongate second, both together not much shorter than third. Second and third abdominal segments without median discals, but with strong median marginals. Pteropleural much stronger than the three *stpl*, exceeding apex of the large lower calyptra..... *Marshallomyia* gen. n.

SCHIZOLINNAEA, gen. n.

Moderately slender, glossy, pale ferruginous, head and thorax with an ivory and piceous pattern. *Head* vertically truncate anteriorly, with slightly produced vibrissal angles and the mouth-margin strongly projecting and convex between them, face much longer in profile than frons, occiput strongly convex, parafrontalia with only 1 strong proclinate seta, last pair of inclinate setae slightly posterior to this and very strong, cruciate and reclinate, third

antennal segment in male deeply cleft,* in female axe-shaped, even dilated to, and truncate at, tip ; arista rather long with short basal segments ; palpi slender and small.—*Thorax* with well-developed setae, among them 1 +3 *ia*, 2 *npl*, *pra* small, *sa* placed unusually forward, above basal extremity of epaulet, second *sa* quite as long and strong ; basal and subapical scutellars strong, the latter crossed, lateral scutellars moderately strong, preapical discals and apicals very weak, the latter crossed ; prosternum and propleural depression bare, anterior mesopleural very weak, 0 +2 *stpl*, pteropleural seta rather short, reaching apex of lower calyptra, postscutellum and row of hypopleural setae well developed, the latter consisting of about 5 strong setae.—*Abdomen* ovate, dorsal basal excavation reaching hind margin of first segment, sutures between second to fourth segments obsolete on dorsal surface ; setae well developed laterally and on posterior segments.—*Wings* of normal shape and venation ; veins bare except for r_{4+5}, which is setulose to about level of *m–m* on dorsal surface, and which carries a few setulae on the basal node only on ventral surface ; R_5 open, bend of *m* obtuse but angular, without or with a very short genuine appendage, *m–m* reaching *m* about halfway between *r–m* and bend, sixth vein not reaching margin. Lower calyptra with almost straight inner margin, apex broadly truncate, forming a right angle with inner margin.—*Legs* with well-developed setae, hind tibia without a *pv* apical seta.

Type : *S. mirabilis*, sp. n.

By the banded wings and the ivory and piceous pattern of head and prothorax this is a very unusual and striking tachinid.

SCHIZOLINNAEA MIRABILIS, sp. n., ♀

Pale-ferruginous, undusted and glossy, head largely ivory with orange-yellow interfrontalia and a broad V-shaped piceous-black band on occiput from upper part of hind margin of eye to neck, the two arms sometimes remaining narrowly separated at neck, at other times extending forward on parafrontalia to the proclinate seta ; thorax with the shoulder, notopleura, supra-alar region, postalar callosity and lateral and apical margin of scutellum rather broadly ivory-coloured, upper part of sternopleura and lower posterior corner of mesopleura also ivory, parts of the pleurae more or less dark brown, mesonotum and median basal part of scutellum otherwise piceous with an ivory spot in front of the *prsc* or *prsc* and last *dc*, the dark coloration somewhat receding on anterior side of suture and extended on its posterior side ; anterior surface of shoulders with a pale-ferruginous transverse spot ; abdomen wholly pale-ferruginous.—Palpi pale-ferruginous, mentum piceous, antennae ferruginous, third segment wholly infuscated, the others somewhat browned ; legs pale-ferruginous, tips of femora and the tibiae rufous-brown to piceous-brown, tarsi piceous.—*Head* pale-coloured but for the piceous occipital band, which in lateral view is, at most, contiguous with upper quarter of eye, the latter oblong-ovate, almost vertical, with sparse moderately long hairs (in male probably quite conspicuously haired) ; frons of female at vertex at least a quarter (0·25–0·28) head-width, rather strongly dilated with concave sides

* No male is available for the description, but years ago I attached a label to one of the females "♂ fissicorn", having seen a male in some collection not now in my hands.

to lunula, where it is almost two-fifths (0·35–0·38) head-width, interfrontalia slightly broadened behind, moderately broadened anteriorly, half as wide again at narrowest part (behind middle at the reclinate seta) as a parafrontale, the latter with 4–5 inclinate setae, 3–4 strong of which lie at and just above lunula, a small one anterior to level of proclinate seta and a strong mainly reclinate one behind and inward of the strong proclinate seta, a little further backward with a small proclinate seta followed by a proclinate setula, in addition with a small number of black proclinate dispersed hairs, ocellars small, inner verticals very strong, curved backward and slightly outward, outer verticals absent ; parafacialia about half, jowls fully twice as wide as apex of second antennal segment. The latter very short, hardly a quarter length of the third, which (in female) almost reaches level of vibrissae, being gradually conspicuously dilated to apex with the dorsal edge slightly concave and the apex broadly truncate ; arista long and thin, bare (pollinose) with short basal segments. Palpi half as long again as width of mentum.—*Thorax* with 0+1(–2) *acr*, 2+3 strong *dc*, 1+3 *ia*, the *prst ia* weak, *ph* and *prst* strong, the latter lying on pale ground as do the 2 very strong *sa*, between which there is a small third seta subequal to the *pra*.—*Abdomen* ovate, with rather fine decumbent short black hair, lateral marginals strong, lateral discals rather short, anterior segments without, third with, a pair of strong median marginals, fourth with a row of moderately strong discals.—*Wings* brownish-grey, somewhat subopaque, anterior basal part somewhat ochraceous, front margin from tip of *Sc* to tip of r_{2+3} fuscous, this coloration extended into a broad band, which somewhat exceeds *r–m* basally and fifth vein posteriorly and reaches *m–m* apically, in R_3 this band is suffusedly connected with a less dark cloud over apex of R_5 and the adjacent cells ; r_1 considerably exceeding level of *r–m*, which lies slightly beyond middle of discal cell, apical cross-vein evenly gently concave, *m–m* hardly concave and almost upright. Calyptrae greyish-brown, somewhat subopaque. Halteres and basicosta pale reddish-yellow, epaulet piceous.—*Legs* rather long but only moderately slender ; fore tibia with 2 strong *p* setae and a row of short but rather stout *ad* and *pd* setae ; mid femur with 2 *a* setae towards middle, 3 *pv* on less than basal half, a *p* and *pd* preapical and a short comb of stronger setulae at apex of *pv* surface, mid tibia with a *v* and two closely approximated *ad* setae at apical third, a *p* and *pd* seta at the same level and a few smaller *p* setae to their proximal side ; hind femur with a few long *p* setae near base, 3 long and strong *pv* on about basal half and a complete row of 5–6 widely spaced rather short *av* setae of which only the distal 1–2, the preapicals, are rather strong, hind tibia with an *av* seta near apical third and an *ad* and *pd* row of 2–3 successively stronger setae which alternate with small ones.

Length 5·4–6·4 mm., of wings 5·4–5·8 mm.

Uganda : Namwamba Valley, 6500 ft., Ruwenzori, xii. 34–i. 35 (*F. W. Edwards*), ♀ type. Tanganyika : Amani, xii. 21 (*A. H. Ritchie*), 1 ♀ paratype ; Amani, xi. 35 (*N. L. H. Krauss*), 1 ♀ paratype (in U.S. National Museum, Washington). Nyasaland : Livingstonia, 4400 ft., 3. v. 40 (*R. C. Wood*), 1 ♀ paratype.

LINNAEMYA Robineau-Desvoidy 1830

Robineau-Desvoidy 1830, 52 ; Curran 1934, 5 Townsend 1939, 238.
synonymy : Curran 1934, 5.
n. syn. *Gymnantia* Enderlein 1937, 441.
n. syn. *Micropalpinus* Enderlein 1937, 441.

Brooks (1944) and Enderlein include only species with discal setae on the intermediate segments in this genus. The variations stated in the following list of localities (*e.g.* for *alboscutellata*, *variegata*, *albifrons*) will make it sufficiently clear that the abdominal discals cannot possibly be used as a generic character in this group, and this applies to many other groups of Tachinidae. Villeneuve has apparently at least at one time considered the length of the pteropleural seta as a character of major importance in this genus, but Curran (1934, 6) regarded this length as variable and rejected the character, which was not used by Townsend (1936, 200) or by Brooks. At first sight I was much inclined to agree with Curran, but against my expectations and rather gradually I found by a survey of the available characters that in this genus the length of the pteropleural seta is a character of primary importance.

The presence or absence of proclinate orbital setae in the male is of little importance in Linnaemyiini, the males of *medioguttata* and *leucaspis* having no such seta, that of *succineiventris* a small one, one of those of *pilitarsis* a strong one, the other none.

Although the species of the *pilitarsis* group are very similar in general appearance and in most of their characters to *Linnaemya* the setulose prosternum might suggest placing them in Tachinini (near *Phorocera*, etc.). However, the well-developed *pv* spur of the hind tibiae excludes them definitely from the group with a normally setulose prosternum, and *leucaspis* connects them closely with *Linnaemya*.

It has been pointed out by Brooks (1944, 193) that in viviparous flies, like the present genus, the larval characters can as a rule be studied and the classification can thus be checked by extracting fully incubated eggs for the abdomen of female flies, even of dry collection specimens. A study of these characters and a complete study of the terminalia of both sexes would of course have increased the value of the present contribution tremendously. However, as this series of papers has as its primary objective the identification of the Tachinidae sent to the Commonwealth Institute of Entomology during many years, an attempt at such a monographic study has had to be postponed until this primary aim has been achieved.

I have been unable to place in the following key *L. aurantiaca* Mesnil (1952, *Bull. Inst. R. Hist. nat. Belg.* **28** (2) : 6) from Belgian Congo.

Key to the Ethiopian species of Linnaemya

1 (108). Second abdominal segment with not more than 2 (–3) discals and 2 (–3) marginals, if exceptionally 1–2 more setae are present, either the mentum not longer than the height of the head, or the second aristal segment about as long as the width of the second antennal segment.

2 (57). Pteropleural seta not or hardly passing middle of lower and apex of upper calyptra.

3 (44). Mentum shorter than height of head.

4 (17). Sector of *m* between *m–m* and bend about half the length of *m–m* or longer, and much longer than the genuine appendage (i.e. not including the fold which often extends the appendage) ; at the same time the epaulet fuscous. Second abdominal segment (normally) without discals. Small species (except *masiceroides*).

5 (6). Palpi three times as long as wide. Third antennal segment only slightly wider at apex than near base. Setulae on dorsal surface of r_{4+5} not extending over more than 1/4–1/3 of the distance from the node to *r–m*. Hairs of jowls and mesopleura all black. Legs piceous. Fourth abdominal segment piceous with the apex brownish-orange, rest of abdomen in female largely piceous, in male pale-testaceous with a piceous median vitta which widens behind base of the third segment so as to occupy most of it : proclinate orbitals absent, dorsal surface of third and fourth abdominal segments with strikingly denser decumbent hair on disc, but with a bare or almost bare median line, third segment without, second sometimes with discals..... *agilis* Curr.

6 (5). Palpi five or more times as long as wide. Third antennal segment much wider at apex than near base (*pulchella*?).

7 (8). Prosternum densely pale-haired. Setulae at base of r_{4+5} only slightly exceeding node. Second and third tergites without discals ; second and third ventrites narrowly exposed, with the normal setulae. Scutellum ivory, humeri and abdomen amber-coloured, the latter without pollinosity and with a large broadly triangular piceous median suffusion on second and third segments : mesonotum glossy black : wings fuscous with the base orange up to *r–m*. ♂ : hair on fourth abdominal segment markedly finer and sparser than that on second and third..... *leucaspis* sp. n.

8 (7). Prosternum bare. Setulae at the base of r_{4+5} reaching at least halfway to *r–m*. ♂ : third and fourth abdominal segments not distinctively haired (*pulchella*?).

9 (12). Occiput with numerous black setulae on upper third, which are arranged in 2–3 rows in addition to the normal row. Scutellum wholly creamy-white : apical scutellars small. Ocellars small. Legs pale testaceous with piceous tarsi, tibiae more or less infuscated. Second and third abdominal segments largely ferrugineous, at least in male.

10 (11). Tibiae piceous. Tip of wing, including *m–m*, strongly infuscated, the dark suffusion extending basad along fifth vein to level of *r–m*, base of wing ochraceous ; appendage of bend at least half as long as preceding section of *m*. ♀ : first to third segments of fore tarsi strongly dilated (but longer than wide), the second and third about three times as wide as the corresponding segments of the posterior tarsi. ♂ unknown..... *pulchella* Villen.

11 (10). Tibiae somewhat infuscated at extremities only. Wing not coloured ; appendage on bend about a sixth the

length of the preceding section of *m*. ♀ : fore tarsi not markedly dilated, not more than half as wide again as posterior tarsi. Third antennal segment very large, subtriangular ; abdomen pale at sides (type) or wholly dark. ♂ : two pairs of proclinate orbital setae present *consobrina* Villen.

12 (9). Occiput with only some odd black hairs, which are confined to the area just behind the verticals, and which never form a row behind the normal postocular row. Scutellum often more or less testaceous-translucent, but not creamy-white, often a narrow basal band blackish. Ocellars rather strong. Hypopygium and apex of fourth abdominal segment orange. Hairs of jowls pale yellow. ♂ : proclinate orbital setae absent. ♀ : second and third abdominal segments wholly dark in ground-colour.

13 (16). Femora pale ferruginous. Small slender species, wing length up to 7.5 mm. Vittae of mesonotum separated. Only 4–5 strong inclinate frontal setae present.

14 (15). The general direction of *m–m* almost parallel to that of the apical cross-vein ; *m–m* separated from the latter by much less than its own length. Hair of mesopleura normally pale yellow. ♂ : second and third abdominal segments largely testaceous at sides..... *parcesetosa* Villen.

15 (14). The general direction of *m–m* much steeper than that of the apical cross-vein, *m–m* separated from the latter by almost its own length. Hair of mesopleura all black.. *sororcula* Villen.

16 (13). Femora piceous, the underside and extreme tips pale-ferruginous translucent, posterior surface more or less densely whitish dusted. Larger and stouter. Wing-length 8.5 mm. Vittae of mesonotum broad and fused on each side, except anteriorly. The general direction of *m–m* almost parallel to that of the apical cross-vein ; *m–m* separated from the latter by much less than its own length. Hair of mesopleura pale yellow. Ground-colour of shoulders fuscous. ♂ : 7–8 inclinate frontal setae present ; anterior three abdominal segments and more than basal half of fourth fuscous, pollinosity with large shifting spots, only anterior part of lateral surface of second and third segments dull reddish-translucent, apex of fourth bright orange (coloration of *Cuphocera varia*) ..... *masiceroides* Villen.

17 (4). Sector of *m* between *m–m* and bend very seldom more than half as long as *m–m*, seldom longer and usually much shorter than the genuine appendage ; if (slightly) more than half as long as *m–m* (individually in *geniseta* and *torensis*), the epaulet pale ferruginous. ♂ : proclinate orbital setae absent.

18 (31). Second abdominal segment (normally) without discals. Prosternum bare. Mesopleura usually with black hair only.

19 (30). Palpi at least thrice as long as wide. Occiput with 1–2 irregular rows of black setulae behind upper part of occipital row. Jowls as a rule wholly black-haired. Femora never wholly dark.

20 (21). Upper surface of the posterior femora, and a broad stripe towards their apex below, black or brown ; coxae

partly black. Epaulet brown. Scutellum brownish-yellow or luteous. Hair wholly black, that on jowls sparse and mostly coarse..... **strigipes* **Curr.**

21 (20). Femora and coxae testaceous or ferruginous.

22 (25). Scutellum dull ferruginous. Abdomen almost wholly rufous except for basal excavation.

23 (24). Palpi as long as width of mentum. Dorsal edge of third antennal segment conspicuously convex at base and concave at middle, the part containing the insertion of the arista thus markedly projecting. Anterior basal part of wing up to apex of r_1 and almost to r–m orange, rest strongly infuscated but much paler towards hind margin. Abdomen short-ovate, wholly rufous apart from basal excavation..... *chorleyi* **sp. n.**

24 (23). Palpi almost twice as long as width of mentum. Dorsal edge of third antennal segment not (♀) or slightly (♂) concave. Wings wholly infuscated with paler hind margin. Abdomen ovate, less short, with a piceous spot on median line of second or second and third segments and at the setal pores of the lateral marginals on third or third and fourth segments..... *gracilipalpis* **sp. n.**

25 (22). Scutellum creamy-white. Dorsal edge of third antennal segment only slightly more convex at base, not concave anywhere, thus rather evenly convex to almost straight.

26 (29). Abdomen with a complete or incomplete dark median vitta. Parafacialia without a dark spot at lowest descending frontal seta.

27 (28). r_1 normally bare. Fourth abdominal segment almost always wholly pale ferruginous, the median vitta confined to the anterior two or three segments and narrowed, pointed or fading out towards base of second and third segments. Wings as a rule conspicuously smoky towards apex, especially along apical transverse vein and m–m. 9–12 mm. ♂ : vertex about a fourth head-width ..... *alboscutellata* **Speis.**

28 (27). r_1 with some long setulae on dorsal surface of intermediate third (between the origin of *rs* and the slight node). Fourth abdominal segment wholly fuscous, as is the apical half or so of the third, median vitta broad, suffused and almost parallel-sided. 7–8 mm. ♂ : vertex about a fifth head-width ; apex of third ventrite with a dense comb of equal black, straight setae, which are directed towards apex of abdomen..... *ciliata* **Mesn.**

29 (26). Abdomen wholly rufous, only the first segment largely infuscated, with conspicuous transverse shining spots of yellowish-white pollinosity. Jowls with a conspicuous dark-brown spot on which the lowest two descending frontals are situated. Paramedian and outer vitta of each side of thorax fused towards neck, behind suture the spots are enlarged in a transverse direction, so that a *prst* band is present, which is narrowly interrupted by whitish dust on the *dc* strip. Epaulet dark brown, basicosta creamy white..... *eburneola* **Villen.**

30 (19). Palpi vestigial, reduced to a wart with a few short setulae on it. Occiput with only 2–3 black setulae behind upper part of occipital row, otherwise pale-haired.

Jowls with fine yellow hairs interspersed with fine black ones. Femora wholly piceous-brown. Epaulet ferruginous, basicosta creamy yellow. Third segment of arista incrassate in basal three-fifths, second about twice as long as wide. Frons rather strongly projecting forward (by almost twice width of third antennal segment). Shoulders and scutellum pale testaceous; abdomen pale ferruginous with rather large transverse shifting white-dusted spots ..... *breviseta* Villen.

31 (18). Second and third abdominal segments with a pair of discals each. Prosternum often with a pair of erect black setulose hairs.

32 (37). Prosternum as a rule (not in type of *rhodesiana*) with a pair of erect setulose hairs. Coxae and trochanters more or less darkened, at least the hind ones browned. Pleura (except sometimes for humeral callosities), antennae and parafrontalia fuscous. Dorsal apical extremity of third antennal segment somewhat angular. Wings not bicolorous, sometimes infuscated along the veins, but in this case there is no marked difference between the basal and apical parts.

33 (34). Occiput with only pale hairs behind the occipital row. Femora yellow with fuscous apex, and, on the fore femora, part of the dorsal surface blackened. Epaulet black. Palpi half as long again as the height of the mentum. Propleural depression bare. Thorax fuscous-black, the scutellum largely testaceous-translucent; abdomen black with shifting pollinose spots, dorso-lateral part of second to fourth segments and apex of fourth pale ferruginous, posterior part of lateral surface of third tergite with a fuscous spot which may coalesce with the dilated median vitta, dark coloration of second tergite also sometimes reaching lateral surface ..... *rhodesiana* Villen.

34 (33). Occiput with at least one row of black setulae behind the occipital row. Femora unicolorous. Epaulet pale ferruginous. Palpi shorter than the height of the mentum.

35 (36). Propleural depression bare. Femora piceous. Scutellum reddish-piceous. Thorax and abdomen piceous-black, the abdomen somewhat reddish-piceous ..... *hirtifrons* Mesn.

36 (35). Propleural depression with fine erect setulose hairs. Femora wholly testaceous. Scutellum, humeral callosities, side margins of mesonotum and the abdomen, with the exception of dark median vitta and apex, testaceous. Veins, especially the transverse ones, distinctly suffused ..... *propleuralis* sp. n.

37 (32). Prosternum bare. Femora wholly testaceous; coxae and trochanters testaceous. Pleura largely pale. Antennae dark brown. Epaulet pale ferruginous.

38 (41). Jowls with strong black bristles, some of them near anterior end about as strong as peristomal setae. Wings at most slightly and suffusedly ochraceous at base. Scutellum with 4–5 rather strong preapical and discal setae. Palpi at most as long as height of mentum. Setulae on dorsal surface of r_{4+5} extending more than

halfway to *r–m*. Occiput with at least one row of black setulae behind occipital row. ♂ : without proclinate orbital setae. Medium-sized species.

39 (40). Fourth abdominal segment, hypopygium and legs wholly pale ferruginous, second and third abdominal segments pale ferruginous with, or without, a small piceous median spot as vestige of a vitta, first segment with piceous base and median vitta. Basal antennal segments pale-ferruginous, third less than twice length of second. Parafrontalia testaceous in ground-colour. Only 1–2 bristles on jowls about as strong as peristomal setae. ♂ : vertex not quite three-tenths head width..... *torensis* Curr.

40 (39). Apical half of fourth abdominal segment piceous, intermediate abdominal segments pale-ferruginous with an almost parallel-sided piceous median vitta, piceous basal spot of first segment rather broadly reaching hind margin. Basal antennal segments fuscous, third twice length of second. Parafrontalia fuscous-brown in ground-colour. 4–8 bristles on jowls as strong as peristomal setae. ♂ : vertex fully one-third head-width *geniseta* sp. n.

41 (38). Jowls with fine black setulose hairs only. Wings distinctly bicolorous, the base, including *Sc*, being ochraceous or orange and the apex brown. Black setulae behind occipital row fine and confined to upper part of occiput.

42 (43). Scutellum with four or more preapical and discal setae. Wings almost evenly infuscated beyond *r–m* and apex of r_1, only the fore margin and sometimes *m–m* and apical transverse vein with a slightly darker suffusion. Third antennal segment (♀) three times as long as second, shaped as in *angulicornis*. Palpi somewhat longer than height of mentum. Abdomen rusty red, second to fourth segments unicolorous or virtually so, basal two abdominal segments largely pale-haired on ventral surface. ♀ : vertex almost a third head-width..... *ethelia* Curr.

43 (42). Scutellum with only the normal two preapical setae. Wings browned along the veins only beyond *r–m* and apex of r_1, the central part of each cell conspicuously paler greyish-hyaline. Third antennal segment twice as long as second with the dorsal (anterior) edge and the anterior angle more or less broadly and evenly rounded. Palpi shorter than height of mentum ; about twice as long as wide. Abdomen with dark median and lateral spots on second and third segments. ♀ : the basal two abdominal segments black-haired on ventral surface ; vertex about a fourth head-width..... *boxi* sp. n.

44 (3). Proboscis long, mentum longer than height of head. Sector of *m* between *m–m* and bend longer than the genuine appendage of *m*. *pra* never much shorter than second *npl*. Smallish species with subglobular abdomen ; second and third tergites normally with a pair of discals. Scutellum pale testaceous, concolorous with the pale parts of the thorax.

45 (46). Prosternum bare. 3 *post dc*. Sector of *m* between *m–m* and bend more than half as long as *m–m* and more than twice as long as appendage ; wings strongly smoky. Epaulet ferruginous ; basicosta creamy-yellow. Abdo-

men pale ferruginous with a triangular median and a transverse lateral (hind-marginal) spot piceous-black on second, and with similar spots which are connected on hind margin on third segment, fourth with an incomplete piceous-black median vitta ; lateral discals of fourth tergite behind middle, median discals hardly behind basal third. Legs pale with black tarsi. Jowls with sparse fine hairs, the lower ones fulvous, the upper anterior ones black. (♀, Yanina, Ruande, 12. ii. 53). Palpi hardly half as long again as wide..... *aurantiaca emdeni* Mesnil

46 (45). Prosternum setulose. 4 *post dc.* ♂ : fourth ventrite with a pair of narrow (in *brunneoguttata* broad and short) median processes and a large and deep (in *brunneoguttata* rather shallow) paramedian excision which separates the median processes from the lateral lobe. Hypopygium large with the inferior forceps very broad, mussel-shaped. (Scutellum not ivory but amber-coloured, concolorous with the paler part of the thorax).

47 (54). First to third ventrites narrowly exposed, second and third with some setae and odd hairs, the first often with hairs. Genuine appendage of *m* very short, several times shorter than the preceding section of *m*.

48 (49). Epaulet ferruginous. Abdomen without a dark median vitta (except on first segment where an incomplete narrow one is present). Wings greyish-hyaline with the base somewhat orange. Abdomen pale ferruginous, not darker towards median line. Pale dust of head and thorax golden..... *succineiventris* sp. n.

49 (48). Epaulet fuscous. Abdomen with a piceous median vitta.

50 (51). Wings and calyptrae strongly infuscate, even in basal part ; basicosta ferruginous. Abdomen and scutellum dark rusty-red, the former suffusedly piceous towards median vitta. Pale dust of occiput and thorax whitish *fumipennis* sp. n.

51 (50). Wings at most slightly smoky, basal part pale, somewhat ochraceous ; basicosta whitish. Ground-colour of abdomen and scutellum pale ferruginous to pale testaceous. Pale dust of occiput and thorax yellowish.

52 (53). Third antennal segment brown, as a rule strongly dilated to apex and about half as long again as wide. Abdominal vitta dark brown, narrowly interrupted at front margin of each segment, the spots subtriangular. The pale parts rather densely cinereous dusted..... *brunneoguttata* sp. n.

53 (52). Third antennal segment fuscous-black, hardly dilated to apex, almost twice as long as wide. Abdominal vitta piceous-black, continuous, the spot on the second segment forming a rectangle ; the pale parts very thinly and inconspicuously dusted except for some silver-white dust in the incisures and some yellowish dust on lateral surface of posterior segments..... *vittiventris* sp. n.

54 (47). Second and third ventrites broadly exposed and bare, or almost so, never with setae, but sometimes with a few small hairs. Genuine appendage of *m* at least half as long as preceding section of *m*. ♂ : hind tarsi

laterally compressed and with a fringe of half-erect *ad* setulae.

55 (56). Abdomen with a complete and continuous median vitta. ♂ : fifth tergite wholly or almost wholly pale ferruginous. *ad* setulae of hind tarsi longer ; second segment much shorter than third and fourth together.... *pilitarsis* Villen.

56 (55). Abdominal vitta formed of four separate though subcontiguous spots, the two intermediate ones of which are triangular. ♂ : fifth tergite glossy piceous except on disc ; *ad* setulae of hind tarsi shorter ; hind tarsi strikingly short, second segment virtually as long as the third and fourth together..... *basilewskyi* Mesnil

57 (2). Pteropleural seta reaching or virtually reaching apex of lower calyptra.

58 (91). Mentum not longer than height of head.

59 (64). Wing-membrane largely bare and hyaline or milky from level of *r–m* to base, most of C_2, basal half to fourth of discal cell and base of adjoining cells thus devoid of microscopic hairs ; wings unicolorous. Palpi considerably shorter than diameter of mentum. Hair on jowls fine and largely or wholly pale. Arista as a rule rather short and incrassate (compressed) almost to apex, second segment about four times as long as wide. Third antennal segment not much dilated to apex, which is truncate, the dorsal edge at insertion of arista more or less convex and between this part and apex as a rule broadly and shallowly concave.

60 (61). Second abdominal segment (normally) without discals. Abdomen testaceous (as are scutellum, side margin of mesonotum and at least part of the pleura) with a well-developed black median vitta, the spot of each segment usually somewhat dilated posteriorly, and with small or without black lateral spots, fourth segment often largely black. Coxae and trochanters largely yellowish, but fore coxae with a more or less fuscous *av* stripe. ♂ : frons much, ♀ : frons distinctly less than a third head-width at vertex..... *angulicornis* Speis.

61 (60). Second abdominal segment (normally) with a pair of discals. Abdomen dark rufous with a broad black median vitta. Coxae and trochanters almost entirely blackish. Frons at least (♂) or more than one-third head-width at vertex.

62 (63). Femora dull reddish-orange with the apex piceous, the latter coloration more extended along ventral surface ; fore coxae more or less broadly testaceous exteriorly. Abdomen with large dark lateral spots. ♂ : frons one-third head-width at vertex, without proclinate setae. ♀ : frons more than one-third head-width.... *variegata* Wied.

63 (62). Femora wholly piceous ; fore coxae wholly piceous-black. Frons in both sexes more than one-third head-width and with proclinate setae..... *comta* Fln.

64 (59). Wing-membrane covered with microscopic hairs everywhere or practically everywhere.

65 (74). Palpi 4–6 times as long as wide, longer than diameter of mentum.

66 (69). Wings not or evenly infuscated, not orange at base.

Epaulet fuscous. Fore coxae with a fuscous stripe along antero-interior margin. Infrasquamal setulae present. Fourth abdominal segment not markedly more pollinose, appearing as dark as the preceding ones. Jowls and mesopleura black haired, the former with some stronger bristles anteriorly. Anterior and ventral surfaces of femora with a piceous streak extending from apex almost to middle.

67 (68). r_1 bare. Second segment of arista less than twice as long as wide, not projecting beyond edge of third segment. Second to fourth abdominal segments wholly rufous, only the second with a piceous median vitta, which is rather narrow and does not quite reach hind margin; dust almost absent, restricted to basal part of lateral surface of each segment, pale brown. Wings with suffused veins, thus appearing infuscated especially along front margin. ♂: without proclinate orbital setae ..... *somerenana* sp. n.

68 (67). r_1 densely setulose on intermediate third of dorsal surface. Second segment of arista about four times as long as wide, entirely projecting beyond edge of third segment, as the tip of the first reaches level of edge. Second to fourth abdominal segments with a moderately broad median vitta, which behind reaches discals of fourth segment and laterally encloses the pores of the median discals and marginals; dust rather conspicuous, forming a shifting tesselate pattern which reaches median line, yellowish-white. Wing veins not suffused except for *r-m*. and *m-m* which are very slightly suffused, wings not appearing infuscated. ♀: fore tarsi not dilated ..... *setinervis* Mesn.

69 (66). Base of wings orange up to apex of *sc* or somewhat beyond, otherwise infuscated. Epaulet pale ferruginous. Fore coxae wholly pale. Infrasquamal setulae absent (seldom vestigial). ♀: second and third segments of fore tarsi about as wide as third antennal segment.*

70 (73). Mesopleura largely pale-haired. Pale basal coloration of wing almost or fully reaching apex of r_1, and occupying at least almost basal third of discal cell.

71 (72). Second abdominal segment without discals. Infuscation of apical part of wing following the veins and therefore more solid on anterior part of wing, the apical part of R_1 not paler than the apical part of the discal cell, but both of them considerably paler than the strip adjacent to the veins. Fourth abdominal segment inconspicuously dusted appearing ferruginous and as dark or darker than the third. A rather slender species *jocosa* Karsch.

72 (71). Second abdominal segment with a pair of discals. Infuscation of apical part of wing solid from front margin to at least fifth vein, but the apex including the apical part of R_5 much paler, the apical part of the discal cell thus much darker than that of R_5. Fourth abdominal

* The only female of *pictipennis* has not more than the basal segment of one fore tarsus left, but Curran (1927, 19) states that the fore tarsus is strongly dilated.

segment densely pollinose, appearing much paler than the preceding ones. A rather stout species with the abdomen subcircular in outline ..... *turbida* B.B.

73 (70). Mesopleura wholly black-haired. Pale basal coloration of wing hardly passing apex of *sc* and extending only to extreme basal part of discal cell, apex of wing hardly paler ..... *pictipennis* Curr.

74 (65). Palpi up to about four times as long as wide, not longer and usually much shorter than diameter of mentum, if slightly longer then wings wholly pale.

75 (82). Fore coxae with a conspicuous fuscous band from base to apex on the bare antero-interior strip, sometimes (*andrewsi*) wholly fuscous (posterior coxae also fuscous in the corresponding places), the femora with a sharply defined fuscous spot at the extreme base of the *a* surface (*andrewsi* wholly fuscous except for extreme tip). ♂ : without proclinate orbital setae.

76 (77). Mesopleura largely pale-haired. Jowls on anterior part with a few moderately strong black setae, otherwise as a rule mainly pale-haired. Propleural depression fuscous (though pale-dusted). Second to fourth abdominal segments pale ferruginous, the second sometimes with a blackish median vitta which tapers posteriorly, all segments with conspicuous somewhat shifting spots of pale golden pruinosity. ♂ : superior forceps subtriangular, flattened in apical half, tip somewhat upcurved : inferior forceps broadened at base so that they cover the sub-basal part of the superior forceps, the apex narrowed and drawn out into a rather long process ..... *albifrons* Smith

77 (76). Mesopleura wholly black-haired.

78 (79). Jowls with only fine setulose hairs (most of which are black). Second to fourth abdominal segments wholly pale-ferruginous, the second sometimes with a brown median vitta as in *albifrons* but the third or more segments almost always with a dark brown lateral spot on hind margin, the pollinosity inconspicuous, not forming shifting spots, and on the second and third segments confined to a narrow basal band. Propleural depression almost always pale testaceous. ♂ : superior forceps strongly compressed in more than apical third, with a broad depression between the compressed part and the hairy basal part, tip not upcurved ; inferior forceps upcurved, rather broadly rounded at apex, in lateral view with a small spine at apex of interior forceps *alopecina* Speis.

79 (78). Jowls with a few moderately strong black setae on anterior part. Second to fourth abdominal segments with a broad median vitta, which exceeds the median marginals exteriorly, and which is complete but for the apical extremity of the fourth segment, the vitta dilated and broadly extending to lateral surface on fourth or third and fourth segments. (Abdomen very similar to that of *variegata*). Propleural depression fuscous.

80 (81). Coxae and femora (almost wholly) fuscous. Base of third antennal segment strongly dilated, forming a triangular prominence at base of arista (♂ only?) ; third segment

of arista not noticeably tapering, from basal third to apical fifth (♂ only?). Longitudinal veins not suffused. Pollinosity of abdomen forming shifting pale and dark spots ..... *andrewesi* sp. n.

81 (80). Coxae pale ferruginous with a fuscous stripe, femora (almost wholly) pale ferruginous. Dorsal edge of third antennal segment only somewhat convex near base and apex, otherwise straight; third segment of arista slender and evenly tapering. Longitudinal veins markedly suffused with brown. Pollinosity of abdomen denser on a narrow band at base of second to fourth segments and towards lateral surface of fourth but not forming marked shifting spots..... *elgonica* sp. n.

82 (75). Fore coxa and base of femora wholly pale, or the latter at most with a brown suffusion at the extreme base of the *a* surface.

83 (84). Hairs of mesopleura (except for a group round anterior mesopleural), like those of jowls and occiput (except for occipital row), almost entirely yellow. Abdomen entirely testaceous on dorsal surface, less often with piceous spots between the median marginals and very seldom with these spots forming an interrupted median vitta; lateral surface of the third segment often, and of the second sometimes, with a dark brown spot at hind margin; fourth segment rather densely golden dusted, in dorsal view, however, appearing golden dusted only at sides. Apical half and posterior part of wings tinged brownish-grey, basal half of anterior part tinged ochraceous..... *ingrami* Curr.

84 (83). Hair of mesopleura wholly or almost wholly blackish; occiput with some black setulae behind upper part of occipital row.

85 (86). White-dusted basal bands of the abdominal segments conspicuous and well defined; second and third segments with a complete or almost complete black median vitta, which exceeds the level of the median discals and marginals anteriorly, posteriorly and laterally. Hair of occipital dilation all or almost all black, fine. Hair of abdomen longer and finer. Wings wholly infuscate, especially in antero-basal part. Parafacialia with black setulae on upper third or so. ♂: superior forceps elongate-triangular with the apex only somewhat drawn out; inferior forceps tapering towards apex, which is produced into a small curved point at upper side (natural position)..... *argyrozona* sp. n.

86 (85). Abdominal segments without well-defined pale dusted basal bands, some slight and ill-defined pollinosity visible in posterior view only; if the second and third segments have median spots, these do not exceed the median setae laterally and very seldom anteriorly. Hair of occipital dilation all or almost all yellow.

87 (88). Second and third abdominal segments with a well-defined black median spot on posterior half. Wings conspicuously orange in antero-basal part. Parafacialia black-setulose on upper third or so..... *gowdeyi* Curr.

88 (87). Second and third abdominal segments without a black

median spot (but in rare cases with a piceous median suffusion, which may form a complete narrow median vitta on the second segment). Either the wing base infuscate, or the parafacialia bare below the lowest descending frontal seta (except for one or two setae very close to the latter).

89 (90). Parafacialia black-setulose on upper half or so. Wing base strongly infuscate. Mentum one-sixth or less shorter than height of head. Abdomen rufous. Basal antennal segments largely reddish. ♂ : superior forceps with short and rather sparse hairs, somewhat flattened, spindle-shaped beyond the long-haired basal part ; inferior forceps large and gradually tapering and somewhat upcurved into a blunt point, the outer surface of the extreme tip with a tiny black spine, which does not exceed the tip ; lobes of fourth ventrite only very broadly and shallowly emarginate on apical margin.... *prohecate* Speis.

90 (89). Parafacialia bare or virtually bare below the lowest descending frontal seta. Wing base orange anteriorly. Mentum about 3/4–4/5 the length of the head-height. Abdomen testaceous to rufo-testaceous, i.e. distinctly more yellowish than in *prohecate*. Basal antennal segments fuscous. ♂ : superior forceps glabrous, narrow and rodlike except at base, slightly tapering to apex ; inferior forceps broad to apex, the lower (in natural position) part of which is adorned with a small hooklike point that is directed upwards, lobes of fourth ventrite produced at inner part of apical margin into a short triangular lobe, which is almost as long as wide.. *victoria* Curr.

91 (58). Mentum considerably longer than height of head. (*Tachinomima* B.B.)

92 (93). Legs and abdomen wholly pale, first tergite with a narrow vestige of a median vitta. Basal segments of arista short, the apex of the second not or hardly exceeding the dorsal edge of the third antennal segment. Parafacialia at narrowest part hardly a third the width of the small diameter of the eye ; hairs of jowls pale and fine. Parafrontal setulae all fine and rather short. Prosternum with or without some erect pale setulae. ♀ : second and third segments of fore tarsi dilated and each of them more than twice as long as wide, fourth and fifth not markedly dilated..... *flavitarsis* sp. n.

93 (92). At least the last 2–3 segments of the tarsi blackish and the abdomen at least with a black basal spot. Second segment of arista elongate ; at least about as long as the basal width of the second antennal segment. The anterior parafrontal setulae stronger and longer, the descending frontal setae forming together with them a more or less marked somewhat untidy tuft of setae. Prosternum bare. ♀ (as far as known) : third and fourth segments of fore tarsi strongly dilated, even more so as a rule than the second, fifth also dilated, the fourth and fifth not much or hardly longer than wide.

94 (103). Jowls with fine setulose hairs only, most or all of which are pale. Legs pale but for the apical 2–3 segments of the tarsi. Dorsal surface of fourth abdominal segment

wholly pale or with a black median spot or largely fuscous with a pale apical margin. Median vitta of abdomen varying from complete to absent.

95 (102). Fore coxa wholly yellowish, as is the rest of the legs except for the apical 2–3 tarsal segments. Hair of jowls largely yellowish, fine and shorter. Palpi not more than twice as long as wide. As a rule a weaker marginal seta present on either side of the strong marginals of the second tergite.

96 (101). Parafacialia almost or fully half as wide as the eye. Second segment of arista almost or fully as long as the greatest width of the second antennal segment. ♂: vertex almost 3/10 head-width or wider. (♀♀ probably indistinguishable.)

97 (100). ♂: Inferior forceps about twice as long as wide, the lower edge almost straight or, in basal half, very slightly concave.

98 (99). ♂: Parafrontalia with 1–2 pairs of proclinate orbitals. Third antennal segment twice as long as second, fully reaching level of vibrissa. Second and third antennal segments with only a narrow rusty-brown median vitta, which is darker between the setae of the second ..... *conducens* Villen.

99 (98). ♂: Parafrontalia without proclinate orbitals. Third antennal segment less than twice as long as second, not reaching level of vibrissa. Second and third abdominal segments with a well-defined fuscous-black median vitta, which is constricted at the base of the third and more or less conspicuously continued on the fourth segment ..... *angustiforceps* sp. n.

100 (97). ♂: Inferior forceps about half as long again as wide, the lower edge strongly convex, especially in apical half.... *longirostris* Macq.

101 (96). Parafacialia about a third as wide as eye. Second segment of arista about as long as basal width of second antennal segment. Apical half of third tergite, in the middle extending forward to enclose the discals, wholly fuscous-black, as is the fourth tergite apart from a suffused narrow ferruginous hind margin, second tergite with a small subtriangular median spot enclosing the median marginals and fading out towards discals. Wing length 7.3 mm..... *sulphurea* Villen.

102 (95). Fore coxa with a fuscous longitudinal stripe along antero-interior surface; tarsi wholly black. Parafacialia at narrowest part about a third the width of the eye. Second segment of arista as long as the smallest (basal) width of the second antennal segment. Hair of jowls largely black and rather long. Palpi thrice as long as wide. Abdomen testaceous-yellow with a broad well-defined piceous-black median vitta. ♂: vertex hardly 1/4 head-width; inferior forceps as in *conducens*..... *nigritarsis* sp. n.

103 (94). Anterior part of jowls with a group of strong and long black setulose hairs, some of these as strong as the weaker ones of the peristomal setae. Tarsi wholly fuscous, coxae at least with a fuscous longitudinal stripe. Femora at least narrowly infuscate at apex and base. Parafacialia at least half as long as the greatest width of the second antennal segment.

104 (107). Coxae and femora largely pale ferruginous. Abdomen wholly dull or pale rusty-red except for most of the first segment and somewhat infuscated along median part of disc; with large shifting spots of whitish pollinosity.

105 (106). r_1 bare; r_{4+5} with setulae near base only. ♀: fore tarsi dilated ..... *maculipes* Villen.

106 (105). r_1 with numerous setulae on basal two-thirds of dorsal surface; r_{4+5} setulose halfway to r–m on dorsal and ventral surfaces. ♀: fore tarsi not dilated ..... *setinervis* Mesn.

107 (104). Coxae and femora wholly fuscous-black. Abdomen brownish orange, except for much of the first segment and the piceous apical third or more of the fourth, in addition normally on the second or on this and further segments with a well-defined piceous median vitta; pollinosity thin and not forming shifting spots, more distinct on a very narrow band on fore margin of the segments ..... *laxiceps* Villen.

108 (1). Second abdominal segment with more than three discals (and more than three marginals). Pteropleural seta more or less reaching apex of lower calyptra. Ground-colour of the abdomen dull rusty-red. If pale testaceous see *longirostris*, of which some specimens with more than three median discals and marginals on the second abdominal segment are at hand.

109 (110). Mentum about as long as height of head or slightly shorter. Ventrites exposed, the hind margin even of the first, second and third with a transverse row of 2–6 very strong, spine-like setae, which are much stronger than those along the ventral hind margin of the tergites (in ♀ only?). Third antennal segment with the dorso-apical angle very broadly rounded off and the apical margin very oblique. Jowls pale-haired. Mesopleura as a rule largely pale-haired. Dorsal surface of abdomen black-haired..... *caffra* Villen.

110 (109). Mentum conspicuously longer than height of head. Ventrites very narrowly exposed, the hind margin of the anterior three with setae which are weaker than those along the ventral hind margin of the tergites. Third antennal segment with the dorso-apical angle as a rule slightly rounded and the apical margin therefore usually not or only slightly oblique.

111 (112). Mesopleura largely or wholly black-haired. Ventral parts of second and third (and fourth) tergites near median line with a curved row of very strong, spine-like setae, which on the second tergite differ very strikingly from the fine setae of the rest of the ventral hind margin. Second segment of arista less than thrice as long as wide at apex, shorter than the basal width of the second antennal segment..... *aculeata* Curr.

112 (111). Mesopleura largely yellow-haired. Ventral parts of second and third tergites near median line with some only gradually and slightly stronger setae, which do not greatly differ from the setae of the rest of the ventral hind margin. Apical margin of third antennal segment not or slightly oblique. Second segment of arista more

than thrice as long as wide at apex, about as long as basal width of second antennal segment or longer.

113 (114). Abdomen with only black hair on dorsal surface. Frontal setulae rather strong and numerous anteriorly below and outwards of the descending frontal setae, forming together with them a more or less marked, somewhat untidy looking tuft of setae ..... *multisetosa* Villen.

114 (113). Third and fourth abdominal segments wholly pale-haired on dorsal surface, second pale-haired on basal part. Anterior frontal setae finer and shorter, not forming a marked tuft ..... *bequaerti* Curr.

LINNAEMYA AGILIS Curran

Curran 1934, 6, 8, n. syn. *Linnaemyia obscurior* Villen. 1934, 409.

Typical localities : TANGANYIKA : Morogoro (type in B.M.). NATAL : Durban. CAPE PROVINCE : East London ; Isopingo. Of *obscurior* : NATAL : Durban. BELGIAN CONGO : Bambesa. TANGANYIKA : Morogoro (the type and paratype of *agilis* and a paratype of *obscurior* were both bred in vii. 23 by A. H. Ritchie at this place, but from different hosts).

In B.M. from KENYA (*R. J. Stordy*), *Micropalpus obscurior* Villen. Type ♀, another female with identical locality-label. *Tanganyika* : Morogoro vii. 23, ex *Earias insulana* (*A. H. Ritchie*), 1 ♂, obviously the specimen mentioned in Villeneuve's description. NYASALAND : Cholo (*R. C. Wood*), 3 ♂, 1 ♀. S. RHODESIA : Salisbury, 20. xii. 54, 1. i. and 11. i. 55 ex *Earias* sp. (*A. D. Caley*), 1 ♂, 2 ♀ ; Nov. 1953, ex larva *Earias biplaga* Walk. (*T. H. C. Taylor*). CAPE PROVINCE : Port Elisabeth, 24. iii.50, (*G. C. Clark* ; Grahamstoun, 30. vi. 55, ex larva *Earias insulana* Boisd. on *Hibiscus rosa-sinensis* (*E. McC. Callan*), 2 ♂, 1 ♀. Seen from KENYA : Nakuru 1936, ex *Earias* sp. (*A. Townsend*) ; Kitale, x. 42, ex *Earias biplaga* (*R. L. Le Pelley*), 1 ♀. UGANDA : Serere, ii. 37, ex *Earias* sp. (*A. M. Gwynn*), 1 ♂. BELGIAN CONGO : Bambesa, i. 34 (*H. J. Brédo*). UGANDA : from *Earias biplaga* Walk : *Linnaemyia pulchella* Villen. 1934, 410. Typical localities : S. NIGERIA : Oshogbo (type in B.M. ; it is a female and was marked " Typ." by Villeneuve). DAHOMEY.

LINNAEMYA LEUCASPIS, sp. n., ♂

Glossy ferruginous with the upper part of occiput and frons fuscous, the mesonotum except for shoulders, notopleural and postalar callosities glossy piceous-black, the latter and the scutellum ivory, pleurae suffusedly brown, anterior three abdominal segments with a narrow piceous median vitta, which is suffusedly dilated to hind margin of second and third segments and with a brown or piceous-brown spot on lateral surface of hind margin of three segments. Antennae piceous red, third segment almost wholly fuscous, mentum piceous-brown, palpi and legs pale ferruginous, (hind) tibiae (the others missing in type) browned at base, tarsi piceous.—*Head* densely golden dusted with shifting dark spots on the dark parts, interfrontalia rufous-brown ; occiput with several rows of black hairs behind upper half of eye but with only pale hairs behind lower half ; hair of jowls pale gold and fine throughout ; frons at vertex one-fifth (0·21) head-width, strongly dilated with concave

sides to lunula, where it is almost two-fifths (0·37) head-width, interfrontalia chestnut-brown, evenly dilated forward, almost half as wide again at middle as a parafrontale, the latter with 8–9 inclinate setae, of which 2 descend on the parafacialia to slightly below ventral level of first antennal segment, outer part of parafrontalia with numerous fine proclinate black hairs, ocellars rather short but quite conspicuous, divaricate, inner verticals very strong, outer verticals absent ; parafacialia at narrowest part half, jowls more than fully, as wide as third antennal segment. The latter more than half as wide again near base as apex of second segment, widest near apex, the dorsal (anterior) edge slightly concave beyond insertion of arista, 2·5 times as long as wide, its apex reaching level of vibrissa ; arista slender, evenly tapering, second segment twice as long as wide.—*Thorax* undusted on dorsal surface, except for some thin whitish dust on shoulders and notopleura ; with 2 +3 *acr*, the last *prst* one anterior to the last *prst dc*, 3 +3 *dc*, the first *post* ones rather widely spaced, 0 +3 quite strong *ia*, *pra* well developed ; anterior mesopleural replaced by 3–4 short stiff setulae, mesopleural hairs black, anterior and lower *stpl* apparently subequal, lower one almost halfway between, and only slightly below level of the other two *stpl* ; subapical scutellars almost twice as widely separated from each other as from basal scutellar, lateral, apical and preapical scutellars well developed.—*Abdomen* short-ovate, almost subglobular, dorsal surface undusted, except for very thin gold dust at sides and apex of fourth segment, anterior segments with well-developed lateral marginals, second with a pair of short median marginals, third with a row of strong marginals, fourth with a row of strong discals and moderately strong marginals, both rows rather broadly interrupted on median line ; hypopygium pale-ferruginous, third and fourth ventrites strongly browned medially.—*Wings* ivory at the extreme base of the veins, basicosta brown, epaulet piceous ; r_1 exceeding level of *r–m*, which lies somewhat beyond middle of discal cell, r_{4+5} with a few setulae on basal node only, R_5 with a slightly obtuse, almost right, angle at apex posteriorly, apical cross-vein outwardly concave behind, straight in anterior half, sector of *m* between *m–m* and bend one-third longer than the genuine appendage, almost half as long as *m–m* ; the latter sinuous and oblique. Calyptrae pale ochraceous-grey, subhyaline with pale-ochraceous border and whitish fringe. Halteres yellowish white.—*Legs* (missing in type, except for hind ones) : hind femur with a complete row of 6–7 long and strong *av* setae and 3–4 long *pv* setae on slightly more than basal half, hind tibiae with 2 *av* and 4–5 *ad* setae, the distal *av* and the penultimate *ad* much stronger, and with 2 *pd* setae.

Length 8·9 mm., of wings 7·4 mm.

Belgian Congo : Mongbwalu, 1939 (*Mme. Scheitz*), ♂ type (in Mus. Congo Belge, Tervueren).

Somewhat similar to *turbida* B.B., but this has the mesonotum and scutellum dusted pale ferruginous, with only the central part of the former infuscated.

LINNAEMYA PULCHELLA Villeneuve

Villeneuve 1934, 410.

Typical localities : S. Nigeria : Oshogbo (type in B.M. ; it is a female

and was marked "Typ." by Villeneuve). FRENCH W. AFRICA : Dahomey.

LINNAEMYA CONSOBRINA Villeneuve

Villeneuve 1941, 108.

Typical locality : S. RHODESIA : Vumba Mts. In B.M. from NATAL : Weenen, xi. 29 (*H. P. Thomasset*), 1 ♂. CAMEROONS : Mt. Cameroon, Onyanga, 8000 ft., 20. i. 32, by beating (*M. Steele*), 1 ♀. The male is undescribed. It differs from the males of the related species by the presence of two proclinate orbital setae on either side. The pale coloration of the anterior three abdominal segments is restricted on the first segment to the hind extremity and on the third to the anterior half ; the dark median vitta is more suffused than in *parcesetosa* and *sororcula*.

I have seen the thorax and wings of another specimen presumably of this species, labelled : UGANDA : Nyakasura, Toro, 2. viii. 31 (*J. F. Shillito*).

LINNAEMYA PARCESETOSA Villeneuve

Micropalpus parcesetosa Villeneuve 1916, 471. Curran 1934, 7, 10.

Typical localities : N. W. RHODESIA : Chilanga. NYASALAND : Mt. Mlanje CAPE PROVINCE : Cape Town ("typus" seen, in S. Afr. Mus.).

In B.M. : from NATAL : Weenen, xii, 23–i 24 (*H. P. Thomasset*), 1 ♀ ; Estcourt, ix-x. 96 (*G. A. K. Marshall*), 1 ♂. NYASALAND : Mt. Mlanje, 24. ix. 13 (*S. A. Neave*), labelled "*Micropalpus parcesetosus* Villen., Dr. Villeneuve det.", 1 ♀ ; Cholo (*R. C. Wood*), 1 ♂. TANGANYIKA : Old Shinyanga, 26. v. 52, in house (*E. Burtt*), 1 ♂ ; Kilossa, 1. iv. 22, 27. iii. 22 (*A. Loveridge*), 1 ♂, 2 ♀. KENYA : 1907 (*J. E. S. Old*), 1 ♀. GOLD COAST : Yapi, ix. 15 (*J. J. Simpson*), 1 ♂ (Curran det.). SIERRA LEONE : Njala, 17. iv. 25, at light (*E. Hargreaves*), 1 ♂ (Curran det.), 21. viii. 30, 1 ♂. Seen from UGANDA: M.35, Masaka Road, 3. iv. 31 (*H. Hargreaves*), 1 ♀. NATAL : Umbilo, Durban, 15. xi. 14 (*L. Bevis*), 1 ♀. TRANSVAAL.: Tzaneen, ii. 34, 1 ♀. BELGIAN CONGO : Elisabethville, 8. xii. 29 (*M. Bequaert*), 3. xii. 34 (*P. Quarré*) ; Bambesa, 6. vi and xi. 37 (*J. Vrydagh*), 9, 16. v., 24. viii. 38 (*P. Henrard*), 20. ix. 33 (*J. V. Leroy*) ; Stanleyville, 28. i. 28 (*A. Collart*) ; Kilo, Kibali-Ituri, iv. 30 (*G. du Soleil*) ; Boma, 1935 (*W. Moreels*) : Rwanki, 3. iii. 46 (*J. V. Leroy*) ; Kanyinya, Urundi, 1500 m., vi-xii. 46 (*Dames de Marie*). NIGERIA : Ibadan, Olokemeji (*J. C. Bridwell*).

Concerning the type locality "Grahamstown" see under *sororcula*. Possibly one or two of the other typical localities concern *sororcula* or *consobrina*, and some of the localities recorded in 1934 by Curran for *parcesetosa* belong to *sororcula* Villen. 1941. The recorded localities must therefore be disregarded. The Kilossa female of 6. iv. has the mesopleural hair all black but is otherwise a typical *parcesetosa*.

LINNAEMYA SORORCULA Villeneuve

Villeneuve 1941, 107.

Typical locality : BELGIAN CONGO : Eala. In B.M. : from CAPE PROVINCE : Grahamstown* (*C. W. Mally*), 1 ♀, labelled "*Micropalpus parcesetosus* Villen. Typ." and "*parcesetosus* Villen. ♀", both labels being blue and in

* xiii. 08.

Dr Villeneuve's writing. NATAL : Port Natal (*Plant*), 1 ♀. KENYA, Karua, vi. 36 (*V. G. L. van Someren*), 1 ♀ ; Nairobi, 22. iv. 27 (*Symes and Hopkins*), 1 ♀. UGANDA : (*G. D. H. Carpenter*), 1 ♀. TANGANYIKA : Taborad, Igalula, 20. vi. 52 (*E. Burtt*), 1 ♀ ; Amani, 29. xi. 35 (*N. L. H. Krauss*), 1 ♀ ; Luchenza, Makandi, 2400 ft., 10. vi. 11 (*F. G. Evans*), 1 ♂. GOLD COAST : Obuasi, Ashanti, 13. viii. 06 and 8. vi. 07 (*W. M. Graham*), 2 ♀. Seen from KENYA : Ngong, ii. 41 (*V. G. L. van Someren*), 1 ♀. UGANDA : Bwamba Valley, vii. 45 (*G. R. C. van Someren*), 1 ♀. BELGIAN CONGO ; Bambesa, 1. 37 (*J. Vrydagh*). NATAL : Krantz [Klogt], iv. 17 (*H. W. Bell Marley*), 1 ♀, marked " Typ." by Villeneuve, but not mentioned in his description.

The male has not been described. As in *parcesetosa* each lateral third of the second abdominal segment and of almost the basal half of the third is testaceous. The hypopygium is pale ferruginous. There are no proclinate frontal setae. The only available male has no antennae.

Villeneuve did not state in his description which specimen of the typical series he designated as the type, but the word " Typ." on his labels has in several cases (e.g. *Chromatophania fenestrata* and *Sericophoromyia marshalli*) been applied to more than one specimen. As Villeneuve (1916) has described both sexes of *parcesetosa*, his type (holotype) is no doubt the male, which has not yet been returned to London, and the female from Grahamstown is the allotype, which has no more standing in nomenclature than any paratype. The male type of *parcesetosa* should thus have been available to Villeneuve when he described his *sororcula*, and there is therefore no reason for changing the names on account of the female marked " *parcesetosa* Type." in the B.M.

LINNAEMYA MASICEROIDES Villeneuve

Villeneuve 1935, 141.

Typical locality : KENYA : Lake Marsabit (type in B.M.).

LINNAEMYA STRIGIPES Curran

Curran 1934, 6, 9.

Typical locality : CAPE PROVINCE : East London.

LINNAEMYA CHORLEYI, sp. n., ♀

Pale-ferruginous with rusty-red, almost undusted, glossy abdomen, occiput and disc of mesonotum fuscous, dusted pale gold ; tarsi piceous ; antennae fuscous with orange incisures, proboscis piceous.—*Head* densely dusted pale-gold, interfrontalia rufous-brown, upper part of parafrontalia dark brown in ground-colour, upper part of cerebrale pale ferruginous, occiput largely pale-haired but with 2–3 rows of black hairs behind upper third of postocular row, the latter formed entirely by black setulae, which are arranged in a double or triple row from lower eye-margin to mouth-margin, jowls with rather fine and sparse hairs, many of which are moderately long ; frons at vertex one-third (0·32–0·33) head-width, rather strongly dilated with concave sides to lunula, where it is about one-half (0·49–0·56) head-width, interfrontalia evenly

dilated forward, about as wide at middle as a parafrontale, the latter with 6–8 mostly strong inclinate setae, of which 2 descend on parafacilia to ventral level of first antennal segment, whereas the hindmost is reclinate, stronger than the preceding ones and placed somewhat anterior to level of front ocellars, in addition with numerous fine proclinate black hairs and 2 strong proclinate orbitals, ocellars not very strong, almost divaricate, inner verticals very strong, outer ones weak ; parafacialia one-half to three-quarters, jowls half again, as wide as third antennal segment. The latter reaching level of vibrissa, 2·5 times as long as wide near apex ; arista of almost even thickness in basal three-fifths, second segment about thrice as long as wide.—*Thorax* moderately thinly dusted gold, the pollinosity on disc appearing brown if viewed more or less in the same direction in which the light strikes the specimen, with four narrow incomplete undusted fuscous vittae, the pale-ferruginous coloration occupying the lateral part of the dorsum up to the *ph*, *prst*, almost the second *post ia* and the posterior part including scutellum up to the *prsc* and last *post dc*, metanotum piceous, some areas on the pleurae more or less browned ; 3 +3 *acr*, the last *prst* ones posterior to the last *prst dc*, 3 +3 strong *dc*, 1 +3 *ia*, the *prst* one weak, the others quite strong, *pra* subequal to second *npl*, between it and the *sa* a small seta ; hair of mesopleura black, anterior mesopleural replaced by a few stronger setulae ; *stpl* as in *leucaspis*, the lower somewhat weaker than the anterior one ; subapical marginals of scutellum somewhat more widely separated from each other than from basal marginal, lateral strong, apicals and preapicals well developed.—*Abdomen* short-ovate, almost subglobular, some very thin gold dust becoming visible only in certain directions on base of lateral surface of third and fourth segments, basal dorsal excavation with a suffused piceous spot ; anterior two segments with short but rather strong lateral marginals, second also with a pair of strong median marginals, third with a pair of strong median discals and a row of strong marginals, fourth with a row of about 12 strong discals and of slightly less strong marginals.—*Wings* orange at base, the orange area suffusedly defined by a line extending from tip of r_1 to apex of anal cell ; setulae on r_{4+5} extending less than halfway to *r–m* ; r_1 much exceeding level of *r–m*, which lies slightly beyond or at middle of discal cell, bend of *m* obtuse but angular, the appendage about twice as long as preceding section of *m*, apical cross-vein slightly concave outwardly in posterior part, anterior half virtually straight, *m–m* slightly sinuous and rather strongly oblique. Calyptrae subopaque, brownish (type) or brown (paratype), with concolorous border and pale-gold fringe. Halteres pale reddish yellow.—*Legs* : fore tibia with 3 *p* setae, a row of short *pd* setae and longer *ad* setae ; mid femur with an irregularly dispersed group of *a* setae about middle, 2 *av* about basal third, 4 *pv* in basal half and 3–4 *p* to *d* preapicals, mid tibia with a *v* seta, 2 very strong and, alternating with them, 3 smaller *ad* and 3 *p* setae, the first of which is rather small ; hind femur with an *av* row consisting of 5–7 somewhat unequal setae and 3–4 strong *pv* setae on slightly more than basal half, hind tibia with 2 or 1 *av*, 2 strong *pd*, between or basad of which a smaller one is present, and an *ad* row of about 10 alternatingly stronger and weaker setae.

Length 8·9 mm., of wings 7·1–7·9 mm.

UGANDA : Mile 10 Kampala–Entebbe Road, 20. vi. 37 (*T. W. Chorley*), ♀, type. KENYA : Trans-Nzoria Dist., nr. Cherangani Hills, 40 m. E. of Mt. Elgon, 6200 ft. 6–9 ii. 25 (*C. R. S. Pitman*), ♀ (paratype without abdomen).

In coloration almost identical with *turbida* B.B. which differs, however, by the presence of median discals on the second abdominal segment, by a single much longer pteropleural seta, pale hair of jowls and mesopleura, the absence of a dilation at the base of the third antennal segment, more strongly developed pollinosity with shifting reflections and less numerous discals on the fourth abdominal segment.

LINNAEMYA GRACILIPALPIS, sp. n., ♂ ♀

Ferruginous, upper half of occiput, posterior part of parafrontalia and disc of mesonotum fuscous, the lateral parts of the thorax, outward of the *ph*, *prst* and *post ia* and, in the type, a band between the scutellar suture and the hindmost *dc*, remaining pale ; metanotum fuscous, pleurae with suffused infuscated spots ; abdomen with a piceous spot in the basal excavation and with a small piceous spot at the base of the median marginals of the second segment and with (type) or without (paratype) a larger spot extending between the bases of the median (discal and marginal) setae of the third segment, in addition with a more or less distinct small piceous-brown spot on hind margin of lateral surface of third (♂ ♀) and fourth (♂) segments ; antennae ferruginous with suffusedly infuscated basal segments and apical and dorsal edges of third ; palpi and legs pale ferruginous, tarsi piceous with dark-brown metatarsus (♂) or wholly piceous (♀).—*Head* densely dusted pale-gold, inner part of parafrontalia almost undusted and somewhat shining, occiput of male with the dust whitish on upper half, interfrontalia and upper part of cerebrale ferruginous (type) or pale ferruginous (paratype) ; upper part of occiput with numerous black hairs, hairs of jowls all black in paratype, golden, except for the anterior ones, in male ; frons at vertex one-fifth (♂ 0·22, ♀ 0·20) head-width, in male rather strongly dilated with the sides concave towards lunula, where it is almost one-half (0·46) head-width, in female moderately dilated with almost straight sides to lunula, where it is two-fifths head-width, interfrontalia almost parallel-sided behind and gradually somewhat more dilated anteriorly (♂) or evenly and moderately dilated forward (♀), almost twice as wide at middle as a parafrontale, the latter with about 14 (♂) or 10 (♀) inclinate setae, of which 3 (♀)–4 (♂) descend on parafacialia, and of which the hindmost in female is stronger and reclinate, outward to the setae with very fine and small black hairs, and, in female, with 2 strong proclinate orbitals, ocellars rather weak, inner verticals very strong and decussate, outer verticals absent (♂ ♀) ; parafacialia more than half as wide, jowls half as wide again, as third antennal segment. The latter reaching level of vibrissa, large, much broader at base of arista and especially near apex, than at base ; arista rather long and slender, evenly tapering from second fifth, second segment twice as long as wide.—*Thorax* on disc with moderately thick whitish (type) or golden (paratype) dust and 4 narrow interrupted undusted vittae, dust thinner and in certain directions appearing fuscous towards centre of disc, in male yellowish on shoulders, notopleura and pleura ; 4+3 *acr*, 3+3 strong *dc*, (1)+3 *ia*, the

prst one more or less indistinct, the others strong, setae otherwise as in *chorleyi*, but subapical scutellars separated from each other by half as much again as from the basal scutellars.—*Abdomen* short-ovate, especially in male, almost undusted, some very thin yellowish dust visible in posterior view towards base of segments, especially laterally, but this is more conspicuous only on basal half of lateral surface of fourth segment ; hypopygium conspicuously prominent and subglobular, though not very large, the second genital segment everywhere with moderately strong erect black setae ; first segment without median but with lateral marginals, second with a pair of rather strong median and lateral marginals, third with a pair of strong median discals and a row of strong marginals, the median pair placed somewhat more forward, fourth segment with a row of strong discals and somewhat less strong marginals.—*Wings* subopaque with dark-brown veins, base of r_{4+5} with about 6 rather closely placed setulae ; r_1 much exceeding level of *r–m*, which lies almost at middle of discal cell, bend of *m* rectangular (type) or obtuse but angular (paratype), appendage considerably longer than section of *m* between *m–m* and apical cross-vein, both of these strongly oblique, apical cross-vein somewhat concave near base, *m–m* somewhat sinuous, more than thrice as long as sector of *m* between *m–m* and apical cross-vein. Calyptrae opaque, dark brown with concolorous border and fringe. Halteres dull reddish-yellow. Epaulet ferruginous, basicosta pale-ferruginous.—*Legs* rather slender, fore tibia with 2(–3) strong *p* and a row of about 8 small *ad* setae, second to fourth tarsal segments considerably broadened in female ; mid femur with 3 (♂) or 5 (♀) *a* setae about middle, at basal third, with a long and strong (♂) or moderately strong (♀) *av* seta, followed by a small one, and on less than basal half with 4 strong *pv* setae, mid tibia with 1 *v*, 2–4 *ad* and 2–3 *p* setae ; hind femur with a row of 7–8 long and strong *av* setae, 4–5 long and strong *pv* setae on just over basal half, in male with numerous further long fine erect bristles on the various *v* and *p* surfaces near base, in female with a few long bristles near base of *p* surface, hind tibia with 1–2 *av*, 2 strong *pd* and a row of 4–6 *ad* setae, the intermediate 2–4 of the latter strong.

Length : 9·5–11·2 mm., of wings 8·9–9·5 mm.

KENYA : Nyeri, vi. 49 (*V. G. L. van Someren*), ♂ type (in B.M.). BELGIAN CONGO : Kilo, Kibali-Ituri, 1930 (*G. du Soleil*), ♀ paratype (in Mus. Congo Belge, Tervueren).

LINNAEMYA ALBOSCUTELLATA Speiser

Micropalpus alboscutellatus Speiser 1910, 138 ; 1914, 10 ; Villeneuve, 1913, 27 ; Curran 1934, 12.
Linnaemya alboscutatus (Speis). Curran 1928, 398.
Gymnantia alboscutellata Speiser, Enderlein 1937, 441.

Typical locality : TANGANYIKA : Kibonoto, Kilimanjaro (I have seen the type at Stockholm). Recorded from NIGERIA: Oshogbo (Villeneuve). BELGIAN CONGO : Stanleyville ; Lukolela ; Tshibinda. UGANDA : Nyakasura, Toro ; Lake George. KENYA : Masai Reserve. NYASALAND : Mt. Mlanje. NATAL : Durban (all by Curran 1928 and 1934). CAMEROONS : Tiko near Victoria (Speiser 1914). In B.M. from : NYASALAND : Zomba (*H. S. Stannus*), ♂ (hairs on mesopleura and jowls practically all yellow), 2 ♀ (on one of them the second tergite with a discal to the left of the middle) ; Mt. Mlanje, 3. xii. 12,

1 ♀; 2. ix. 13, 1 ♀, 10. ix. 13 (*S. A. Neave*), 1 ♂ (second tergite with a pair of discals, the right one small), 2 ♂, 1 ♀, 19. ix. 13, 1 ♀, 20. ix. 13, 1 ♂, 1 ♀, 24. ix. 13, 1 ♂, 1 ♀, 23. viii. 13, 1 ♂, 2 ♀ (Villeneuve det.), 1 ♀ mesopleural hairs all yellow), 27. viii. 13, 1 ♀, 4. vii. 13, 1 ♂ (hairs of metapleura and jowls practically all yellow). TANGANYIKA: Amani, xii. 21, 1 ♂, 29. x. 35 (*N. L. H. Krauss*), 1 ♀. KENYA: Kericho, Limbeva District, 6500 ft., 14. i. 13, on house (*C. M. Dobbs*), 1 ♀ (hair of mesopleura and jowls largely yellow). UGANDA: Mabira Forest, Chagwe, 17–20. vii. 11 (*C. C. Gowdey*), 1 ♀, 3500–3800 ft. 16–25. vii. 11 (*S. A. Neave*), 1 ♀; Mabira 18. iv. 10 (*C. C. Gowdey*), 1 ♀; Nyakasura, Toro, 21. viii. 31 (*J. F. Shillito*), 1 ♀. BELGIAN CONGO: Tshibinda, 21–27. viii. 31 (*Miss A. Mackie*), 1 ♀. S. NIGERIA: Bende, 29. iii. 11 (*P. H. Macdonald*), 1 ♀, Ilesha (*L. E. H. Humfrey*), 1 ♀ (hair on mesopleura partly, on jowls wholly, yellow); 21. viii. 10 (*T. F. G. Mayer*), 1 ♀ (some of the mesopleural hair and all of the hair on the jowls yellow); Oshogbo (*T. F. G. Mayer*), xi. 10, 1 ♂, 1 ♀, 1–18. x. 10, 2 ♀, 8. xii. 10, 1 ♀ (Villeneuve det.), 9. xii. 10, 1 ♂ (right side with 1, left side with 2 proclinate orbitals; hair of mesopleura partly, of jowls wholly, yellow), no date, 1 ♀ (hair of mesopleurae partly, of jowls wholly, yellow), 8. xii. 10, 1 ♀ (hair of mesopleurae and jowls largely yellow), 4. xi, 1 ♂ (hair of mesopleurae partly, of jowls largely, yellow). N. NIGERIA, 1912 (*J. W. S. Macfie*), 1 ♂. GOLD COAST: Obuasi, Ashanti, 8. vi. 07 (*W. M. Graham*), 1 ♀, 20. vii. 07, on window, 1 ♂ (abdominal pattern atypical: vitta complete and parallel-sided from base to middle of third segment, then dilated from a broad band on hind half of the third segment, fourth segment with a pair of oblique yellow spots which coalesce suffusedly into an inverted broad Y), 31. vii. 07, 1 ♂ (mesopleural hairs almost all yellow). Seen from UGANDA: Kampala, 17. viii. 36 (*H. Hargreaves*), 1 ♀; W. Ruwenzori, 8–9000 ft., vii. 45 (*G. R. C. van Someren*), 1 ♂; Kamengo, Mawakota, viii. 53 (*van Someren*), 2 ♂. SIERRA LEONE: Njala, xii. 34 (*E. Hargreaves*), 1 ♀. BELGIAN CONGO: Bambesa, xi. 37 (*J. Vrydagh*), 1 ♀, xi. 33 (*H. J. Bredo*), 1 ♂, 11 and 14. v. 38 (*P. Henrard*), 1 ♀, 1 ♂; Alipago, Uele, 27. viii. 37 (*J. Vrydagh*), 1 ♂; Ituri-Blukwa, 6. xi. 28 (*A. Collart*), 1 ♂; Bumba, xii. 39–i. 40 (*H. De Saeger*); Kilo, Kibali-Ituri, 5. viii. 31 (*G. du Soleil*); Terr. de Banningville, Riv. Bas-Kwango, iv. 45 (*Falin*); Stanleyville, 1925 (*J. Ghesquière*); Barumbu, viii. 25 (*J. Ghesquière*).

I have seen a male with 1 : 2 and a female with 3 : 6 setulae on r_1 and pale mesopleural hairs among the material of the Congo Museum, Tervueren.

LINNAEMYA CILIATA Mesnil

Mesnil 1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) 4.

Type: BELGIAN CONGO: Rutshuru, Kivu, 1285 m. In B.M. from: KENYA: Nairobi vii. 30 (*V. G. L. van Someren*), 3 ♂. Seen from: BELGIAN CONGO: Rwankwi, 31. iii. 46 (*J. V. Leroy*), 1 ♀ (in Mus. Tervuren). In the type the abdomen is largely dark with only the sides orange, but in the Rwankwi ♀ the abdomen is testaceous with a suffused piceous-black median vitta fading out on fourth tergite. In the male the abdomen is coloured as described by Mesnil.

LINNAEMYA EBURNEOLA Villeneuve.

Villeneuve 1935, *Rev. Zool. Bot. afr.* **27** : 141.

Belgian Congo : Ruwenzori, 2300 m., 19. iv. 14 (*J. Bequaert*), ♀ type (in Mus. Brussels). I have been enabled by the courtesy of M. L. P. Mesnil to study the type. The proboscis is not particularly long and markedly shorter than the height of the head.

LINNAEMYA RHODESIANA Villeneuve

Villeneuve 1941, 108.

Typical localities : S. Rhodesia : Salisbury ; Vumba Mts.

In B.M. from : Salisbury (type). Kenya : Chyulu Hills, 5600 ft., vii. 38 (Coryndon Museum Expedition), 1 ♂. The typical male from Salisbury labelled " *Linnaemyia rhodesiana* Villen. Typ." by Villeneuve is in the B.M. and is herewith designated as the type of *rhodesiana*. Villeneuve has misread the data on the label, which is 28. viii. 38 and not vii. The specimen from the Chyulu Hills is slightly darker, but quite a number of the Chyulu specimens of Muscidae show a tendency to darker coloration.

LINNAEMYA HIRTIFRONS Mesnil

Mesnil 1952, *Bull. Inst. R. Hist. nat. Belg.* **28**, 2 : 5.

Typical localities : Belgian Congo : S. du lac Edouard, riv. Rwindi, alt. 1000 m. Uganda : Unyoro district. In B.M. from : Uganda : Entebbe, 21. viii. 11 (*C. C. Gowdey*), 1 ♀.

LINNAEMYA PROPLEURALIS, sp. n., ♂

Pale-ferruginous, parafrontalia, upper half of occiput, disc of mesonotum, metanotum, and a moderately broad median vitta of the abdomen fuscous-black, pleura with large fuscous suffusions, shoulders, lateral part of mesonotum outward to the *prst* and to the *ia* and scutellum pale-ferruginous ; basal antennal segments and palpi strongly infuscated, third antennal segment wholly fuscous ; legs wholly pale-ferruginous, only the distal two tarsal segments brown.—*Head* rather thinly dusted greyish-white and yellowish-white, posterior third of parafrontalia shining, almost undusted, parafrontalia, including their setose extrusion onto the parafacialia, wholly fuscous except for the inner margin, which is orange, interfrontalia rufous-brown, hair of owls black, rather long and bristly anteriorly, upper half of occiput with only one row of rather conspicuous black setulae behind the postocular row ; frons at vertex three-tenths head-width, rather strongly dilated with concave sides to lunula, where it is half as wide as head, anterior part strongly protruding, interfrontalia rufous-brown, evenly and moderately dilated forward, slightly wider at middle than a parafrontale, the latter with a row of 5–6 strong inclinate setae, which is continued over almost upper half of parafacialia by a double to triple row of strong setae, outer part with rather numerous black setulose hairs, ocellars rather weak, inner verticals very strong, decussate, outer verticals fine, hardly differentiated from the inner setulae of the postocular row ; parafacialia a third as wide again, jowls twice as wide, as third antennal segment. The latter large, almost reaching level of vibrissa, only one-half

longer than wide, somewhat broadened to almost apex, which forms an obtuse but pronounced angle ; arista slender and evenly tapering almost from base, second segment less than twice as long as wide.—*Thorax* not very densely dusted whitish, in front of suture with four moderately narrow undusted fuscous vittae, behind suture with three moderately narrow undusted vittae, the median one complete, situated between the *acr* rows, the outer ones reaching only level of second *post dc* behind, and situated between the *dc* and *ia* rows ; 3+3 *acr*, 2+3 strong *dc*, 0+3 strong *ia*, *pra* rather strong, subequal to second *npl* ; apical scutellars rather weak, decussate, subapical ones very strong, diverging, slightly less widely separated from each other than from the basal ones, lateral scutellars very strong, preapical discals rather weak, forming a transverse row of about 6 setae.—*Abdomen* ovate, with a narrow band of thin white dust at base of second and third segments and somewhat more conspicuous white dust on base of fourth segment, especially at sides, median vitta overlaid with thin grey dust, occupying the dorsal excavation of the first and more than median fourth of second and third segments, where it is somewhat narrowed towards the very base and apex, forming a large inverted-triangular spot, which is narrowly connected with the vitta of the third segment and which leaves pale the whole width of the apex of the fourth, the latter segment in addition with a roundish fuscous spot on lateral surface close to hind margin ; first segment with very strong lateral marginals and not very strong lateral discals, second with strong median and lateral discals and very strong median and lateral marginals, third with strong median and lateral discals and a row of very strong marginals consisting of four pairs, fourth segment with a row of strong discals and marginals. Hypopygium moderately prominent, rather small, second genital segment near base with several erect black stiff setae.—*Wings* brownish subopaque, conspicuously suffused along the veins, setulae on dorsal surface of r_{4+5} ; extending more than halfway to *r-m* ; r_1 much exceeding level of *r–m*, which lies almost at middle of discal cell ; R_5 somewhat obtuse behind, but forming a pronounced angle, appendage hardly longer than preceding section of *m*, apical cross-vein somewhat concave in posterior half, almost straight in anterior part, *m–m* almost straight, very slightly convex outwardly, rather strongly oblique. Calyptrae opaque brown, with the border bright ochraceous at base of outer side but otherwise concolorous, fringe golden. Halteres dull reddish. Epaulet ferruginous, basicosta pale-testaceous.—*Legs* with long and slender tarsi, the hind ones being one-fifth longer than the tibia, claws of male long ; fore tibia with 2 strong *p* and a row of 4–5 short *ad* setae ; mid femur with 4 *a* setae about middle, 3 long and strong *av* and 3–4 similar *pv* setae at basal half and a row of shorter, more decumbent setae from there to apex, mid tibia with a strong *v*, 3 very strong and, beyond them, 1 short *ad* and 2 moderately strong and 1–2 weak *p* setae ; hind femur with a row of 7 long and strong *av* setae and, on just over basal half, 4–5 similar *pv* setae, near apex of *pv* surface with 3–4 semidecumbent rather weak setae, hind tibia with a moderately strong *av* seta, which is preceded by a smaller one, 2

moderately strong *pd* setae which, are preceded by a small one, and a row of 3 strong *ad* setae, which are preceded and followed by a weaker one.

Length 9·2 mm. of wings 8·1 mm.

KENYA : Mt. Kinangop, Aberdares, 8000 ft., x. 34, Cedar Forest (F.W.E.), ♂ type.

LINNAEMYA TORENSIS Curran

Curran 1934, 7, 18.
n. syn. *Linnaemyia patruelis* Mesnil 1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 4.

Typical locality : UGANDA : Nyakasura, Toro (type in B.M.) ; of *patruelis*: BELGIAN CONGO : Bururi, Urundi, 1900 m. In B.M. from : Jelza (Uganda) 3. ii. 21 (*H. Hargreaves*), 1 ♂. Seen from UGANDA : Lugazi, 3. xi. 26 (*H. Hargreaves*), 1 ♂. BELGIAN CONGO : Lulenga, N. Kivu, xii. 27 (*Ch. Seydel*) ; Kilo, Kibali-Ituri, 14–20. i. 30 (*G. du Soleil*) ; Bambesa, xii. 33 and ii. 34 (*H. J. Brèdo*).

The type of *torensis* Curr. fits Mesnil's description perfectly, and especially the rather unusual double row of descending frontals eliminates any doubt that Mesnil has re-described *torensis*, basing his concept of *torensis* presumably on a misidentified specimen. According to Mesnil's description the frons is " à peine plus large que la moitié de chaque oeil vu de dessus ", i.e. hardly more than 0·2 times head-width. Monsieur Collart has been good enough at my request to send me the type on loan, and the measured frontal-width proves to be 0·292 times head-width (in Curran's type 0·278). (The head of Mesnil's type is somewhat squashed laterally, and the lowest possible measurement by using only the left unaffected eye, and disregarding the fact that the interfrontalia are concave and thus abnormally narrowed, would be 0·252, i.e. a frons just over two-thirds as wide as an eye). The two types reveal no other appreciable difference, not even in the genitalia, as far as these are visible in Mesnil's type.

LINNAEMYA GENISETA, sp. n., ♂.

Pale-ferruginous with the parafrontalia, upper part of parafacialia, upper two-thirds of occiput, much of the pleura (including propleural depression) and the mesonotum (except shoulders notopleura, the declivity outward to the *sa*, and the postalar callosities) infuscated, base of scutellum narrowly and suffusedly infuscated ; abdomen with a piceous median vitta, which remains of almost equal width from base of second to basal third of fourth segment, occupying one-fifth of apical width of second segment, and which is dilated anteriorly to cover the entire basal width of the first, and suddenly extended laterally to occupy the apical two-thirds of fourth segment, hypopygium pale ferruginous. Antennae fuscous, basal segment dull reddish at apex ; palpi fuscous ; fore coxa with a suffused dark streak along anterior surface, tarsi browned.—*Head* rather densely dusted yellowish-white on lower, and greyish-white on upper, part, interfrontalia dull rufous-brown ; frons fully one-third (0·35) head-width at vertex, strongly dilated with very slightly concave sides to lunula, where it is almost two-thirds (0·58) head-width, interfrontalia a quarter wider at middle than a parafrontale, the latter with 5–6 strong inclinate setae and numerous rather strong setulae, which are black

like all the hairs and bristles on the jowls, upper part of parafacialia with 8 descending frontal setae arranged in two rows and reaching level of insertion of arista, ocellars rather weak, inner verticals very strong, outer ones absent, occiput with 2 rows of black setulae behind postocular row ; parafacialia at narrowest part more than one-third, jowls more than five-sixths, width of eye on its smallest diameter. Third antennal segment evenly dilated to apex, which almost reaches level of vibrissae, with straight dorsal edge and the apex forming a very pronounced right angle dorsally (=anteriorly) ; arista evenly tapering and slender, second segment only half as long again as wide.—*Thorax* moderately thickly dusted greyish-white, the four undusted vittae moderately broad, outer ones rather broadly interrupted at suture, inner ones discontinued at suture ; 3+3 (?) *acr*, 3+3 strong *dc*, 0+3 strong *ia*, *pra* rather strong, subequal to second *npl* ; scutellar setae (as far as can be seen in the type, which is not very well preserved) as in *propleuralis*, but subapicals more widely separated from each other than from the basal setae.—*Abdomen* oblong-ovate, strongly convex, especially in the transverse direction, basal dorsal excavation rather small though reaching hind margin of first segment, with thin whitish dust on about basal half of segments 2–4, which becomes denser and conspicuous in posterior view only at base of segments ; all segments with conspicuous lateral discals and marginals, second and third with a pair of strong median discals and basal fourth and with strong median marginals, which on the third form part of the marginal row, fourth with a row of strong discals at basal third and of strong marginals, between these rows with irregular lateral discals ; hypopygium as described for *propleuralis*.—*Wings* brownish subopaque, setulae and venation as in *propleuralis*, but posterior apical angle of R_5 almost right and apical cross-vein, therefore, more concave behind, appendage not longer than preceding section of *m*, *m–m* very different, strongly sinuous and oblique. Calyptrae opaque, brownish-white with hardly darker border and whitish fringe. Halteres dull reddish-yellow. Basicosta pale-testaceous.—*Legs* with rather slender tarsi, claws of male short, setae as in *propleuralis*, but mid femur in type with only 3 *a* setae and mid tibia with a small *v* seta basad of the strong one, hind femur with 8 *av* setae and the hairs and bristles on the *a* surface more conspicuous, and hind tibia with 3–4 successively stronger *av* setae and only 3 strong setae on the *ad* surface, most of these differences remaining undoubtedly within the limits of fluctuating variation.

Length 11·0 mm., of wings 8·1 (?) mm.

Spanish Guinea : Ebinayong (*Nombela*), ♂ type. In Inst. Ent. Españ. Madrid. Very closely related to *torensis* and perhaps only a subspecies.

LINNAEMYA ETHELIA Curran

Curran 1934, 7, 14.

Typical locality : Tanganyika : Amani, (type in B.M.). In B.M. from : Uganda : S.E. Buddu, Toro Forest, 3800 ft., 26–30 ix. 11 (*S. A. Neave*), ♀. Male unknown.

LINNAEMYA BOXI, sp. n., ♀

Pale testaceous with upper part of parafrontalia and of occiput infuscated,

disc of mesonotum piceous, the lateral shoulder region and the lateral part outward to the *ia* and the posterior part behind the last *dc*, extended forward on median line almost or quite to the second *post acr*, remaining pale ; abdomen pale ferruginous, on each of the intermediate segments with a piceous median spot on which the median marginals and discals (type) or only the marginals lie, lateral surface of third segment with a large, of second with a smaller, piceous spot which extends forward from hind-margin, and which dorsally reaches the lateral marginal. Antennae fuscous with base of first and second segment, and tip of third, reddish-orange, palpi dull brown ; legs pale-testaceous with piceous tarsi, base of posterior tibiae somewhat browned.—*Head* with rather dense pale-golden dust, which becomes thin on uppermost part of parafrontalia, being absent from a narrow piceous vitta from a point slightly anterior to inner vertical along outer margin of cerebrale to neck ; occiput with a row of black setulae behind upper third of postocular row, otherwise pale-haired ; frons at vertex about a quarter (0·23–0·25) head-width, moderately dilated with somewhat concave sides to lunula where it is more than two-fifths (0·41–0·45) head-width, interfrontalia rufous-brown, evenly dilated forward, about as wide at middle as a parafrontale, the latter with 7–8 strong inclinate setae, of which the anterior two descend on the parafrontalia to ventral level of first antennal segment, and of which the hindmost one is somewhat stronger and somewhat reclinate (though decussate), on outer part with 2 strong proclinate setae and with a moderate number of fine black hairs, ocellars weak, inner verticals very strong and decussate, outer verticals absent ; parafacialia at narrowest part almost a third, jowls almost two-thirds width of eye at its smallest diameter, jowls with fine hairs, some of which are pale. Third antennal segment considerably broadened from base to basal third, only slightly broadened on rest of its length, dorsal apical angle broadly rounded, apex obliquely truncate ; arista evenly tapering, of normal length, second segment 3–4 times as long as wide.—*Thorax* moderately densely gold-dusted, more thinly so on disc, the four undusted piceous vittae thus not much contrasting, the paramedian ones linear, somewhat diverging and not much exceeding first *post ia*, outer ones very incomplete and broadly interrupted at suture ; anterior declivity with a row of rather conspicuous erect setae (Bezzi's " scapulars "), 3 +3 *acr*, the last *prst* one close to suture, 3 +3 strong *dc*, 3 rather strong *post ia*, the *prst ia* weak or hairlike, *pra* somewhat weaker than second *npl* ; basal and lateral scutellars very strong, subapical ones even stronger, hardly more widely separated from each other than from the basal ones, apical and discal preapical setae much weaker (subequal to the first *post ia*), the apicals decussate.—*Abdomen* ovate, rather strongly convex, some thin golden dust noticeable only towards lateral surface of fourth segment ; anterior two segments with a strong lateral marginal, second and third with a pair of median discals and second with a pair of strong median marginals, third with a row of very strong marginals (4 pairs), fourth with a row of strong discals and moderately strong marginals.—*Wings* bright ochraceous to *r–m* and apex of r_1, somewhat smoky with suffused veins beyond this basal part, setulae on r_{4+5} extending at least halfway to *r–m*, venation as in *propleuralis*, but *m–m* sinuous. Calyptrae brownish-white, somewhat more

brownish along margin, but the latter itself paler, dark cream, fringe pale-gold. Halteres pale reddish-yellow.—*Legs* of normal proportions ; fore tibia with 2 strong *p* and a row of 5 rather strong *ad* setae ; mid femur with 3 *a* setae near middle, 1–2 *av* on basal third and 4 *pv* on less than basal half ; mid tibia with a strong *v* seta (missing from the only remaining mid leg of the type), 3 strong and one shorter *ad* seta, the intermediate two especially strong, 2 strong *p* (in paratype a small third *p* seta nearer base), and 1–2 small *pd* setae ; hind femur with a row of about 6 *av* setae and, on slightly more than basal half with 4 long *pv* setae, hind tibia with 2 *av* setae, the proximal one very weak, 2 strong *pd* and a row of 4–5 *ad* setae, of which one near middle of length is the strongest.

Length 9·6–10·3 mm., of wings 7·1–7·5 mm.

Sierra Leone : Jiama, 1924 (*D. B. Blacklock*), ♀ type. Gold Coast : Asuansi, emerged from Noctuid (?)—larva on *Dryopteris* sp., 16. ii. 41 (*H. E. Box*), 1 ♀ paratype.

Very similar to *L. ingrami* Curr., which has, however, a long pteropleural seta and the hairs on the base of the ventral surface of abdomen pale.

LINNAEMYA SUCCINEIVENTRIS, sp. n., ♂ ♀

Pale-ferruginous with upper third or fourth of parafrontalia, upper half of occiput, disc of mesonotum (up to the *ph* and *ia* at the sides and the last *acr* and *dc* behind), metanotum, and much of the pleurae fuscous, abdomen without a dark pattern except an ovate piceous spot in the basal dorsal excavation ; interfrontalia and antennae ferruginous, third segment infuscated, especially on outer surface and towards margins of inner surface, proboscis testaceous, palpi and legs pale-ferruginous, tarsi-piceous black.—*Head* densely gold-dusted, occiput more silver-dusted, cerebrale undusted fuscous with the upper part between the inner verticals and postvertical setae pale ferruginous ; frons at vertex about a quarter (0·23 in ♂, 0·25 in ♀) head-width, rather strongly dilated with rather straight sides to lunula where it is 0·44 (♂)—0·46 (♀) head-width, interfrontalia hardly or slightly dilated to middle, but conspicuously so to anterior end, especially in female, somewhat wider at middle (in vertical aspect) than a parafrontale, the latter strongly sloping outward, however, and with several rows of fine black hairs in addition to the setae, which consist of 11 (♂) or 7–9 (♀) inclinate setae, the last of which is more reclinate than inclinate and the first four of which descend on the parafacialia practically to level of apex of second antennal segment, both sexes with a rather weak praevertical, male with one rather weak, female with two strong, proclinate setae, ocellars rather weak, inner verticals very strong and decussate, outer verticals absent ; parafacialia at narrowest part not quite a quarter, jowls two-thirds, width of eye at smallest diameter ; mentum and labella together half as long again as height of head. Third antennal segment almost evenly and moderately strongly dilated from base to apex, which is rounded-truncate; arista slender, evenly tapering, second segment half as long again as wide.—*Thorax* moderately densely dusted pale-gold, the four undusted fuscous vittae moderately broad, hardly interrupted at suture, inner ones slightly exceeding first *post acr*, outer ones exceeding third and in a more dorsal view fourth,

post dc ; *acr* as in *L. boxi*, 3+4 strong *dc*, 0+3 strong *ia*, *pra* subequal to second *npl* ; subapical scutellars only slightly stronger than basal and lateral ones, somewhat more widely separated from each other than from the basal ones, preapical discal and apical scutellars moderately strong, the latter decussate.—*Abdomen* virtually undusted, some thin pale-gold dust visible only towards sides of fourth segment ; first segment with strong lateral marginals, second with moderately strong median discals and strong median and lateral marginals, third with strong median, and in female moderately strong lateral discals and a marginal row consisting of 4–5 pairs of strong setae, the paramedian ones somewhat shifted forward in female, fourth with a row of strong discals and of slightly less strong marginals, the actual margin with a row of setulose hairs (♂) or weak setae (♀) ; male hypopgium concolorous, rather small but conspicuously projecting, rather bristly ; female paratype with exposed ovipositor, which is concolorous, the eighth (apparent seventh) abdominal segment rather strongly sclerotized and with strongly convex ventral surface.—*Wings* brownish subopaque, the basal anterior part somewhat ochraceous, as is *sc* and the basal part of the other veins, veins otherwise light-brown to testaceous ; setulae on node of base of r_{4+5} rather numerous and dense but hardly extending beyond ; venation as in *propleuralis*, but *m* and apical cross-vein meeting at right angles and the appendage of the bend very short or represented only by a fold, apical cross-vein outwardly concave in its entire length and *m–m* sinuous, rather strongly oblique. Calyptrae opaque, light-brown with concolorous border and pale-golden fringe. Halteres pale reddish-yellow. Basicosta pale-testaceous.—*Legs* rather slender ; fore tibia with 2 *p* and a row of small *ad* setae, which become very small beyond the basal 2–3 ; mid femur with 2–3 *a* setae towards middle and 2–3 *av* and 2–3 *pv* setae on less than basal half, mid tibia with a *v*, 3 strong *ad* and 2 *p* setae ; hind legs as in *boxi*, but the tibia with only 1 distinct *av* setae.

Length 8·0–9·4 mm., of wings 7·8–8·4 mm.

UGANDA : Namwamba Valley, Ruwenzori, 6500 ft., xii. 34–i. 35 (*F. W. Edwards*), ♂ type, 1 ♀ paratype.

LINNAEMYA FUMIPENNIS, sp. n., ♂ ♀

Rufous-brown, parafrontalia infuscated, upper half of occiput and disc of mesonotum fuscous, the dark coloration of the latter extending laterally to beyond the upper humeral setae, the *prst*, the *post ia* and behind the last *post dc* but only to the second *post acr* ; abdomen dull rufous-brown with a suffused oblong piceous median spot on each segment, reaching from base or almost base to apex on the anterior three segments but only to middle on the fourth ; posterior part of intermediate segments, especially third, suffusedly browned and the median spot thus not clearly separated on disc of third segment. Antennae ferruginous, but all segments mostly browned ; proboscis, palpi and legs pale ferruginous, tibiae somewhat browned, tarsal segments piceous black with the tips narrowly dull ferruginous.—*Head* densely dusted pale greyish-yellow, occiput greyish-white with shifting reflections ; frons at vertex almost a quarter (0·23) head-width, rather strongly dilated

with hardly concave sides to lunula where it is two-fifths (0·41) head-width, interfrontalia rufous, evenly dilated forward, half as wide again at middle as a parafrontale, the latter with 8–10 strong inclinate setae, of which the last pair is decussate and reclinate, and of which the anterior 3 descend on parafacialia almost to level of apex of second antennal segment, outer part of parafrontalia with rather numerous black hairs which become stronger anteriorly along the frontal row, so that this is accompanied on the parafacialia by a row of strong setulae, in addition a rather long and thin praevertical and 2 strong proclinate orbitals, ocellars long and moderately strong, inner verticals very strong, decussate, outer verticals not differentiated ; parafacialia at narrowest part almost a third, jowls two-thirds, width of eye at smallest diameter. Third antennal segment evenly and moderately strongly dilated from base to middle, only slightly dilated towards apex, which is obliquely rounded-truncate with rather broadly rounded dorsal (anterior) angle ; arista very slender, second segment hardly twice as long as wide.—*Thorax* with moderately dense whitish dust, which becomes brownish between the vittae behind suture, the four undusted vittae moderately broad, but not very contrasting, narrowly interrupted at suture ; 3(–5) +3 strong *acr*, 3 +4 strong *dc*, a weak *prst ia* and 3 strong *post ia*, *pra* somewhat stronger than second *npl* ; scutellars as in *succineiventris*.—*Abdomen* virtually undusted, some thin brownish dust becoming visible only along the outline ; first segment with strong lateral marginals, second with strong median and lateral marginals and median discals, third with strong median discals and a row of very strong marginals, fourth segment with 3–4 irregular transverse rows of very strong setae, those near apex somewhat weaker.—*Wings* subopaque, rusty-brown, more so along the veins and especially towards base and fore margin, the central part of the cells R_5, R_1, *Sc* and especially 2 *C* paler ; veins mostly dark brown, stem-vein and base of *c* pale-ferruginous, basicosta ferruginous ; setulae present only on node at base of r_{4+5} ; r_1 much exceeding level of *r–m*, which lies well basad of middle of discal cell, *m* and apical cross-vein meeting at right angles, bend with a very short tapering genuine appendage which is somewhat prolonged by a fold, apical cross-vein strongly concave outwardly near base and slightly so near apex, otherwise almost straight, *m–m* moderately sinuous and oblique. Calyptrae opaque, fuscous-brown with concolorous border and brown-golden fringe. Halteres pale reddish-yellow.—*Legs* of normal build, tarsi somewhat stout though not dilated ; fore tibia with 2 *p* setae and a row of 5 small *ad* ; mid femur with 4 strong *a* setae at middle, 2 strong *av* on less than basal half and 2 *pv* in basal third, mid tibia with a strong *v* seta, 2 *ad*, of which the distal one is very strong, and 2 *p* ; hind femur with an *av* row of about 6 strong setae and, on basal half, 4 very long and strong *pv*, hind tibia with 2 *av* setae, the proximal one fine, 3 moderately strong *pd* and 5 *ad*, of which the third and fifth are very small and of which the fourth is strongest.

Length 9·8 mm., of wings 10·2 mm.

UGANDA : W. Ruwenzori, 8–9000 ft., vii. 46 (*G. R. C. van Someren*), ♀ type.

LINNAEMYA BRUNNEOGUTTATA, sp. n. ♂ ♀

Pale-testaceous to pale-ferruginous, upper half of occiput, upper third of parafrontalia and disc of mesonotum fuscous (laterally to the *ph* and *ia* and behind to the last *dc* and the second *post acr*), abdomen on all segments with piceous-brown median spots, which extend from near base to apex, the spot on the second segment being somewhat dilated behind and more or less subtriangular, that on the third extended up to lateral surface, so as to form a more or less broad hind margin, that on the fourth ovate, oblong or almost square, not quite reaching fore and hind margins ; first genital segment of male wholly or largely piceous-brown, second pale-ferruginous. Antennae strongly infuscated ; palpi pale reddish-yellow ; tarsi piceous-black.—*Head* densely dusted pale-gold, dust especially dense on anterior three-quarters of parafrontalia ; frons (♂ ♀) at vertex three-tenths head-width (0·27–0·31), moderately dilated with almost straight sides to lunula, where it is more than two-fifths (0·41–0·46) head-width, interfrontalia brownish orange to rufous-brown, rather evenly dilated forward, slightly narrower at middle than a parafrontale or of equal width, parafrontalia with 6–8 strong inclinate setae, of which the hindmost pair is stronger and reclinate and the 2–3 lowest pairs descend on parafacialia ; outer part of parafrontalia and the jowls with fine black proclinate hairs ; at level of anterior ocellus with a rather weak praevertical bristle, female with 2 strong proclinate orbitals ; ocellars rather weak, inner verticals very strong and decussate, outer verticals not differentiated ; parafacialia about a fourth, jowls one-half, width of eye. Third antennal segment half as long again as wide, moderately strongly dilated with broadly rounded apical angles ; arista slender and evenly tapering, second segment hardly longer than wide.—*Thorax* moderately densely dusted greyish-gold, disc of mesonotum less densely dusted, the four dark vittae rather narrow, the paramedian ones almost linear, the vittae narrowly interrupted at suture and incomplete behind ; 3–4 +3 *acr*, 3 +4 *dc*, the second *post* ones sometimes very weak, 1 +3 *ia*, the *post* ones weak, *pra* subequal to second *npl* ; scutellar setae as in *succineiventris*.—*Abdomen* short-ovate to subcircular in outline, almost undusted, some thin pale-gold to whitish dust becoming conspicuous only in a postero-lateral view ; first segment with a pair of lateral marginals, second with median discals and median and lateral marginals, third with median discals and a row of strong marginals, fourth with a row of strong discals and of less strong marginals ; male hypopygium rather small but conspicuously projecting, fourth ventrite with a broad excision which is almost rectangulate ; ovipositor of female retractable, inconspicuous.—*Wings* subhyaline with a brownish tinge, especially towards apex of anterior part, veins light brown, becoming darker brown towards apex ; setulae at base of r_{4+5} confined to node ; venation as in *propleuralis*, but posterior apical angle of R_5 sometimes markedly acute and genuine appendage of *m* usually very short (occasionally almost as long as preceding section of *m*) ; *m–m* sinuous, rather strongly oblique. Calyptrae brownish, subopaque, with concolorous border and pale-golden fringe. Halteres pale reddish-yellow.—*Legs* moderately slender ; fore tibia with 2–3 *p* and a row of small *ad* and *pd* setae ; mid

femur with 2–5 *a* setae towards middle, 1–2 *av* and 2–4 *pv* setae on less than basal half, mid tibia with 1 *v* seta, 2 strong *ad*, 2 *p* and some small *pd* setae ; hind femur with an *av* row of 6–7 setae and, on basal half, 4 strong *pv*, hind tibia with 2 small *av* setae, 2–3 *pd* and an *ad* row of about 4–5 setae, the last but one being the strongest.

Length 7·2–10·1 mm., of wings 6·4–9·6 mm.

NATAL : Durban (*Plant*), ♂ type ; Port Natal (*Plant*), 2 ♂ paratypes. UGANDA : Nyakasura, Toro (*J. F. Shillito*), 2 ♀ paratypes (" *Linnaemyia pilitarsis* Villen., Curran det."). ZULULAND (*D. Bruce*), 1 ♀ paratype. S. RHODESIA : Salisbury, 19. x. 37 (*A. Cuthbertson*), 1 ♀. BELGIAN CONGO : Kalembelembe, Baraka, vii. 18 (*R. Mayné*), 1 ♀ paratype (in Mus. Tervueren) ; Mongbwalu, 4. v. 37 (*Mme Scheitz*), 1 ♀ paratype (in Mus. Tervueren).

In the Zululand female the subapical scutellar setae are only as widely separated from each other as from the basal ones, and in the Salisbury female the third antennal segment is not markedly dilated to apex and more than twice as long as wide, and the abdominal vitta is complete and piceous-black.

LINNAEMYA VITTIVENTRIS, sp. n., ♀

Pale-ferruginous with infuscated parafrontalia and fuscous greater upper part of the occiput and disc of mesonotum, the shoulders and the part outward to the *prst* and *ia* and behind the last *acr* and *dc* remaining pale, pleura largely piceous-brown, metanotum and abdominal median vitta piceous-black, the latter consisting of contiguous or practically contiguous spots, that of the second forming a rectangle (with somewhat rounded angles), that on the third a large equilateral triangle and that on the fourth being oval and extending from base to end of second third. Antennae fuscous-black, tarsi piceous with brown ventral surface.—*Head* densely dusted pale-gold, parafrontalia and upper part of occiput more yellowish-white ; frons at vertex one-quarter (0·26) head-width, strongly dilated with hardly concave sides to lunula, where it is over two-fifths (0·43) head-width, interfrontalia rufous-brown, evenly and rather strongly dilated forward, slightly wider at middle than a parafrontale, the latter with 6–8 inclinate setae, the last of which is reclinate and inclinate, parafacialia in addition with 5–6 descending frontal setae arranged in an irregular double row and rather conspicuous black setulae outward and just below the setae, jowls with sparse, outer part of parafrontalia with numerous, black setulae, praeverticals rather weak, ocellars moderately strong, proclinate orbitals strong, inner verticals very strong, outer ones not differentiated, occiput with two rows of black setulae behind the postocular row, the outer ones much finer ; parafacialia fully one-third, jowls almost two-thirds as wide as eye at smallest diameter. Third antennal segment hardly dilated from basal third to apex, the latter rounded-truncate ; arista long and slender, second segment thrice as long as wide.—*Thorax* rather densely dusted pale-gold, in places more whitish-yellow, the four undusted fuscous-black vittae moderately wide, the paramedian ones reaching level of second *post dc*, the outer ones broadly interrupted at suture reaching last *dc* in posterior view, in which they appear dilated outward from level of first to that of third *post dc* ; a median vitta—dark in posterior, pale-dusted in anterior view—present from

scutellar suture to level of first *post acr* ; 3+3 strong *acr*, 3+4 strong *dc*, 1+3 *ia*, the presutural one very weak, *pra* and scutellar setae as in *succineiventris*.—*Abdomen* ovate, practically undusted on disc ; first and second segments with strong lateral marginals, second and third also with strong median marginals, which are somewhat shifted forward, and a pair of somewhat (third segment) or much (second segment) weaker median discals, third with 3–4 strong marginals on each side between the median ones and the lateral outline of the segment, fourth segment with a row of strong discals and of somewhat less strong marginals, on the hind margin itself with a row of much weaker marginals ; ovipositor as in *succineiventris*.—*Wings* greyish subhyaline with a brownish tinge on anterior and basal part, veins ferruginous to light brown ; setulae at base of third vein hardly exceeding node ; r_1 exceeding level of *r–m*, which lies basad of middle of discal cell, bend of *m* obtuse, prolonged by a conspicuous dark fold (but, in the only specimen available, without a genuine appendage), apical cross-vein somewhat concave outwardly, *m–m* moderately sinuous and oblique. Calyptrae brownish-grey subhyaline with pale-brownish border and pale-gold fringe. Halteres reddish-yellow. Epaulet pale-testaceous but appearing black by its dense black setulae ; basicosta creamy white.—*Legs* moderately slender ; fore tibia with 2 strong *p* setae and on basal third 2–3 rather strong *ad* setae, which are followed by one or more very small ones, *ad* surface also with a row of setulae ; mid femur with about 3 *a* setae near middle and 2 strong *av* and *pv* setae (in the type arranged as pairs) near basal third, mid tibia with a strong *v* seta, 4 *ad*, of which the second is strong and the third very strong, and 2 strong *p* and 2 small *pd* setae ; hind femur with an *av* row of 6–7 strong setae and, on basal half, 4 strong *pv* setae, hind tibia with 1(–2) *av*, 2 strong *pd* and an *ad* row of about 8 setae, of which one, beyond middle, is very strong and 2 in basal third strong.

Length 8·7 mm., of wings 8·3 mm.

KENYA : Mt. Kinangop, Aberdares, 8000 ft., cedar forest (*F. W. Edwards*), ♀ type.

LINNAEMYA PILITARSIS Villeneuve

Tachinomima pilitarsis Villeneuve 1913, 27.
Linnaemyia pilitarsis Villen. Curran 1934, 14.

Typical locality : UGANDA : Ibanda (type in B.M.). Recorded from : UGANDA : Ibanda ; Nyakasura, Toro. S. RHODESIA : Umtali ; Salisbury. In B.M. from : UGANDA : Ibanda, 26. xi. 11 (*C. C. Gowdey*), 1 ♂ (Curran det.).

LINNAEMYA BASILEWSKYI Mesnil

Mesnil 1955. *Ann. Mus. Congo Belge Ser. 8vo. Sci. zool.* **40:** 366.

UGANDA : Kilembe, Ruwenzori, 4500 ft. (*F. W. Edwards*), 4 ♂.

LINNAEMYA ANGULICORNIS Speiser

Micropalpus angulicornis Speiser 1910, 138, ♂ ; Villeneuve 1913, 28 ; Enderlein 1937, 441 (*Micropalpinus*).
syn ? *Micropalpus pallidus* Jaennicke 1867, 388, ♀ ; Villeneuve 1914, 439 ; Enderlein 1937, 441 (*Micropalpinus*).

Linnaemyia angulicornis Speis., Curran 1928, 398 ; Curran 1934, 7, 11.
n. syn. *Linnaemyia neavei* Curran 1934, 7, 10, ♂.
n. syn. *Linnaemyia luckmani* Curran 1934, 7, 11, ♀.
n. syn. *Linnaemyia breviseta* Villeneuve 1941, 109, ♀.

Typical locality : TANGANYIKA : Kilimanjaro (I have seen the type in Stockholm) ; of *pallida* : ABYSSINIA ; of *neavei* : PORTUGUESE E. AFRICA : East of Mt. Mlanje (in B.M.) ; of *luckmani* : KENYA : Ngare Narok, Masai Reserve (in B.M.) ; of *breviseta* : BELGIAN CONGO : Kabara.

Recorded from : UGANDA. NYASALAND (up to 4700 ft.). SIERRA LEONE (Villeneuve 1913, 28). ABYSSINIA : Adi Ugri (by Bezzi). PORTUGUESE E. AFRICA : East of Mt. Mlanje ("angulicornis"). BELGIAN CONGO : Stanleyville. S. RHODESIA : Sawmills ; Balla Balla ; Salisbury. S. AFRICA : Nelsprint tp. ; Barberton ; Pretoria ; Maroclapan (all by Curran). In B.M. from : CAPE PROVINCE : Mossel Bay, x. 21 (*R. E. Turner*), 1 ♀. NATAL : Nkwalani, Zululand, 26. vi. 37 (*W. F. Jepson*), 1 ♀ ; Weenen, ii. 25 (*H. P. Thomassett*), 1 ♀ ; TRANSVAAL : Wonderboom near Pretoria, 4. x. 31 (*T. D. A. Cockerell*), 1 ♀ ; Johannesburg, 20. i. 99 (Distant Coll.), 1 ♂. PORTUGUESE E. AFRICA : East of Mt. Mlanje, 3–7. x. 13 (*S. A. Neave*), 1 ♂ (type of *neavei*), 1 ♀. NYASALAND : Marimba, 2. i. 11 (*J. E. S. Old*), 1 ♂ ; Cholo (*R. C. Wood*), 1 ♂, 1 ♀ ; Mt. Mlanje, 29. viii. 13 (*S. A. Neave*), 1 ♀ ; 16. x. 13, 1 ♂ (Villeneuve det.) ; Mlanje (*H. Brown*), 1 ♀ ; Ngani, 4700 ft., 19. iii. 12 (*R. Drummond*), 1 ♀ ; Fort Johnston, 2000 ft., dry season, vi. 10 (*A. H. Barclay*), 1 ♂, 1 ♀ ; Zomba, iv. 06 (*J. E. S. Old*), 1 ♂ ; Blantyre, 23. iv. 10 (*J. E. S. Old*), 1 ♀. N. RHODESIA : Broken Hill, 19. iii. 12 (*E. A. Copeman*), 1 ♂. BELGIAN CONGO : Lueba near Baraka, L. Tanganyika, 17. iv. 27 (*R. Bois*) (Dr. C. Chorley Exp.), 1 ♀ ; 150–200 mls. W. of Kambove, 3500–4500 ft., 29. ix. 07 (*S. A. Neave*), 1 ♀ ; Leopoldville, 29. ii. 04 (*Drs Dutton, Todd* and *Christy*) ; Elisabethville, 2. ix. 31 (*Mrs L. Ogilvie*), 1 ♀ ; Tshibinda, 21–27. viii. 31 (*Miss A. Mackie*), 1 ♂, (*J. Ogilvie*), 1 ♀. TANGANYIKA : Taborad, Igalula, 31. v. 52 (*E. Burtt*), 1 ♀ ; Kilossa, 18. iii. 21 (*A. Loveridge*), 1 ♀. UGANDA : Budongo Forest, Unyoro, 3400 ft., 11–15. xii. 11 (*S. A. Neave*), 1 ♀ ; Lango, vi. 11 (*R. E. McConnell*), 1 ♀. KENYA : Ngare Narok, Masai Reserve, 6000 ft., 31. xii. 13 (*A. O. Luckman*), 1 ♀, type of *luckmani* ; Trans-Nzoria District, near Cherangani Hills, 40 mls. E. of Mt. Elgon, 6200 ft., 6–9. ii. 25 (*C. R. S. Pitman*), 1 ♂. BRITISH SOMALILAND : Burao (*R. L. Taylor*), 1 ♀. ABYSSINIA : (*R. J. Stordy*), 4 ♀ ; Gatele Amaiyu, 4. xi. 11 (*R. J. Stordy*), 1 ♀. SUDAN : Opasi, Mongalla District, 26. ix. 21 and 28 (*Neil Cantlie*), 2 ♂ ; Talodi, Nuba Mts., x. 21 (*F. Moysey*), 1 ♀. N. NIGERIA : Azare, 1924 (*Ll. Lloyd*), 1 ♀. GOLD COAST : Yapi, N. Terr., xi. 16 (*J. J. Simpson*), 1 ♀ (this is the specimen mentioned by Curran as "*Linnaemyia* species"). SIERRA LEONE : Tesani, 1913 (*W. F. Campbell*), 1 ♂ ; Ka-yima, 23. vi. 12 (*J. J. Simpson*), 1 ♂, 1 ♀. Seen from : KENYA : Ngong, v. 36 (*Miss Steele*), 1 ♀ ; Chyulu Hills, 5200 ft., v. 38 (*Coryndon Mus. Exp.*), 1 ♂ ; Sultan Mamud, Emali Range, 4900–5900 ft., iii. 40 ; Nairobi, vii. 36 (*V. S. L. van Someren*), 1 ♀. UGANDA : Kawanda, 21. ii. 46 (*H. Hargreaves*), 1 ♀ ; Apaya, 27. viii. 41 (*Govt. Ent.*), 1 ♀ ; Kano Gulu, 25. vi. 41 (*Govt. Ent.*), 1 ♀. BELGIAN CONGO : Elisabethville, Lubumbashi, 28. i. 21 (*M. Bequaert*), 1 ♀ ; Merclushi, Katanga, xi. 31 (*H. J. Bredo*),

1 ♀; Blukwa, Ituri, 6. xii. 28 (*A. Collart*), 2 ♀; Kasenyi, 22. viii. 35 (*H. J. Bredo*); Suranga, Uele, v. 14 (*Don Lance*); Stanleyville, ii. 26 (*J. Ghesquière*); Nioka, Ituri, 20. i. 34 (*J. V. Leroy*). CAPE PROVINCE: Fort Beaufort, 12. i. 39, ex L. *Diaphone camela* Cram. (*J. W. Geyer*).

From the description it appears that the key-characters of *breviseta* are at least in part identical with those of *angulicornis*, and the data on the arista would seem to indicate that *breviseta* is a synonym of the present species,but the description is too incomplete to permit a definite conclusion. The description of *luckmani* and *neavei*, as well as the types in the B.M., show that these forms tally with *angulicornis* in every respect except for some small details of coloration which are rendered obsolete by transitions. After a prolonged study of these forms I find that they cannot possibly be disdistinguished, even as geographical forms. Bezzi's "*Micropalpus pallidus Jaenn.*" can hardly be the present species, as Bezzi describes the femora as provided with a basal spot like those of *albifrons* Smith (=*affinis* Cort.).

LINNAEMYA VARIEGATA Wiedemann

Tachina variegata Wiedemann 1824, 42; 1830, 311.
Micropalpus variegatus Wied., Villeneuve 1913, 46; 1920, 151.
Linnaemya vulpina Fln., Curran 1934, 20.

Typical locality: CAPE (type "Cape Good Hope, Dec. 1817, 311" seen in Copenhagen Museum viii. 48). Recorded from NATAL: Weenen; New Hanover. TRANSVAAL: Pretoria. CAPE PROVINCE: Barberton; Kaapmuiden; Gordon's Bay; Willowmore. In B.M.: from NATAL: Weenen, viii–ix. 23 (*H. P. Thomassett*), 8 ♂, 1 ♀; Estcourt, 19. i. 13 (*R. C. Wroughton*), 1 ♀; Amanzimtoti, 16. x. 31 (*Mrs W. P. Cockerell*), 1 ♀; National Park, iii. 32 (*J. Ogilvie*), 1 ♀ (with indistinct discals on the second abdominal segment). CAPE PROVINCE: Cape Town, Beaufort West, 25. xi. 33 (*J. Ogilvie*), 1 ♂; Van Rhyn's Pass, 11–21. xi. 31 (*Miss A. Mackie*), 1 ♀; Sea Point, xi. 31–i. 32 (*J. Ogilvie*), 1 ♀; Matatiele, 8 and 10. xi. 54 (*C. H. Andrewes*), 4 ♂; Lady Grey (*R. J. Nel*), 8. xii. 23, 1 ♂, 10. xii. 24, 1 ♂, 1 ♀, 21. i. 25, 1 ♂, 2. ii. 25, 1 ♀, 12. ii. 25, 1 ♂; Krantz, P.E. 1824 ft., 15. xi. (*H. W. Bell-Marley*), 1 ♂ (the label actually reads: Marley, Nov. 15, 1824 ft. (Krantz) P.E.*; the specimen was named "*Linnaemyia comta*" by Villeneuve. It is obviously the present species and not the European *comta*—there are no proclinate setae in this male, but Villeneuve at one time considered *variegata* to be only a variation of *comta*.

This species is similar to, and probably closely related to, the European *vulpina* Fln. In the latter, however, the abdomen is pale brownish-ferruginous with the fourth segment wholly of this coloration except for the median vitta, which does not reach the apex. The frons of the male of the European form is just over a quarter head-width and that of the female hardly three-tenths.

* Dr H. K. Munro writes (5th February 1948) that Mr Chubb, Director of the Durban Museum informs him "I think it is highly probable that the specimen was collected by the late H. W. Bell-Marley at what used to be known as Krantz Kloof, now abbreviated to Kloof, some 15 miles on the main railway from Durban, a favourite collecting place of his, the altitude of which is approximately 1824 feet."

These characters would indicate that *variegata*, which has been synonymised with *vulpina*, may be a subspecies of the latter. As it is, however, confined to South Africa (south of the Limpopo River), whilst *comta* does not seem to extend very far south of the Sahara, the two forms are separated by a huge area and must be regarded as separate species. In the coloration of the abdomen and the width of the frons *variegata* is even more similar to *comta* Fln., but in the latter the frons is even wider, the male has proclinate orbital setae, and the femora are wholly piceous-black.

LINNAEMYA COMTA Fallén

Fallén 1810 *Vet. Akad. Handl.* **31** : 284.

One female specimen of this Palaearctic species is at hand from SUDAN : Dimbiti, S. Jebel Murra, W. Darfur, 7600 ft. (*M. Steele*). It differs from European specimens only by the broadly reddish sides of the abdomen, which are much as in *vulpina*.

LINNAEMYA SOMERENANA, sp. n., ♂

Ferruginous, parafrontalia and upper two-thirds of occiput infuscated, disc of mesonotum fuscous up to the *prst*, *pra* and almost to the *sa* laterally, and to the scutellar suture behind, pleurae almost wholly infuscated, including propleural depression ; first abdominal segment piceous-black, except for a moderately broad hind margin on each side, and on the second, a moderately broad median vitta, which fades out towards hind margin ; palpi brown, mentum piceous-black, antennae fuscous, slightly translucent dull-red ; tarsi piceous-black, trochanters fuscous well defined, the *a* surface of fore coxae with fuscous stripe, posterior coxae fuscous, all femora on about apical half of *a* surface with a piceous streak which extends somewhat further basad on *v* surface, the corresponding part of the tibiae with a narrow piceous streak, apex of tibiae infuscated.—*Head* densely dusted greyish-white, dust on parafrontalia, frontal triangle, temples and upper part of occiput pale brown ; frons at vertex fully a quarter (0·26) head-width, rather strongly dilated to lunula, where it is well over two-fifths (0·44) head-width, the sides concave behind, interfrontalia dull brown, at middle three-quarters width of a parafrontale, the latter with 10 inclinate setae, of which 4 descend on the parafacialia to level of arista, outer part of parafrontalia with numerous black setulose hairs, occiput with yellowish (above) and white hair behind postocular row, only on lower part with 1–2 rows of black setulae, jowls with black setulae and, anteriorly, 2–3 stronger bristles, ocellars not very strong, inner verticals very strong, decussate, outer verticals not differentiated ; parafacialia fully one-third, jowls two-thirds, as wide as eye at its smallest diameter. Third antennal segment only slightly broadened from basal third to apex, where it is somewhat obliquely rounded-truncate, the dorsal (anterior) angle being broadly obtuse, the ventral angle strongly rounded ; arista slender, evenly tapering.—*Thorax* with moderately dense brown-gold and brown dust on mesonotum and silver-grey and gold-grey dust on pleurae, the four vittae not very sharply defined, narrow, incomplete behind and interrupted at suture ; 3+3 *acr* and *dc*, 1+3 *ia*, the *post* ones strong, 5 strong humerals, *pra*

1 ♀; Blukwa, Ituri, 6. xii. 28 (*A. Collart*), 2 ♀; Kasenyi, 22. viii. 35 (*H. J. Bredo*); Suranga, Uele, v. 14 (*Don Lance*); Stanleyville, ii. 26 (*J. Ghesquière*); Nioka, Ituri, 20. i. 34 (*J. V. Leroy*). CAPE PROVINCE: Fort Beaufort, 12. i. 39, ex L. *Diaphone camela* Cram. (*J. W. Geyer*).

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Micropalpus variegatus Wied., Villeneuve 1913, 46; 1920, 151.
Linnaemya vulpina Fln., Curran 1934, 20.

Typical locality: CAPE (type "Cape Good Hope, Dec. 1817, 311" seen in Copenhagen Museum viii. 48). Recorded from NATAL: Weenen; New Hanover. TRANSVAAL: Pretoria. CAPE PROVINCE: Barberton; Kaapmuiden; Gordon's Bay; Willowmore. In B.M.: from NATAL: Weenen, viii–ix. 23 (*H. P. Thomassett*), 8 ♂, 1 ♀; Estcourt, 19. i. 13 (*R. C. Wroughton*), 1 ♀; Amanzimtoti, 16. x. 31 (*Mrs W. P. Cockerell*), 1 ♀; National Park, iii. 32 (*J. Ogilvie*), 1 ♀ (with indistinct discals on the second abdominal segment). CAPE PROVINCE: Cape Town, Beaufort West, 25. xi. 33 (*J. Ogilvie*), 1 ♂; Van Rhyn's Pass, 11–21. xi. 31 (*Miss A. Mackie*), 1 ♀; Sea Point, xi. 31–i. 32 (*J. Ogilivie*), 1 ♀; Matatiele, 8 and 10. xi. 54 (*C. H. Andrewes*), 4 ♂; Lady Grey (*R. J. Nel*), 8. xii. 23, 1 ♂, 10. xii. 24, 1 ♂, 1 ♀, 21. i. 25, 1 ♂, 2. ii. 25, 1 ♀, 12. ii. 25, 1 ♂; Krantz, P.E. 1824 ft., 15. xi. (*H. W. Bell-Marley*), 1 ♂ (the label actually reads: Marley, Nov. 15, 1824 ft. (Krantz) P.E.*; the specimen was named "*Linnaemyia comta*" by Villeneuve. It is obviously the present species and not the European *comta*—there are no proclinate setae in this male, but Villeneuve at one time considered *variegata* to be only a variation of *comta*.

This species is similar to, and probably closely related to, the European *vulpina* Fln. In the latter, however, the abdomen is pale brownish-ferruginous with the fourth segment wholly of this coloration except for the median vitta, which does not reach the apex. The frons of the male of the European form is just over a quarter head-width and that of the female hardly three-tenths.

* Dr H. K. Munro writes (5th February 1948) that Mr Chubb, Director of the Durban Museum informs him "I think it is highly probable that the specimen was collected by the late H. W. Bell-Marley at what used to be known as Krantz Kloof, now abbreviated to Kloof, some 15 miles on the main railway from Durban, a favourite collecting place of his, the altitude of which is approximately 1824 feet."

These characters would indicate that *variegata*, which has been synonymised with *vulpina*, may be a subspecies of the latter. As it is, however, confined to South Africa (south of the Limpopo River), whilst *comta* does not seem to extend very far south of the Sahara, the two forms are separated by a huge area and must be regarded as separate species. In the coloration of the abdomen and the width of the frons *variegata* is even more similar to *comta* Fln., but in the latter the frons is even wider, the male has proclinate orbital setae, and the femora are wholly piceous-black.

LINNAEMYA COMTA Fallén

Fallén 1810 *Vet. Akad. Handl.* **31** : 284.

One female specimen of this Palaearctic species is at hand from SUDAN : Dimbiti, S. Jebel Murra, W. Darfur, 7600 ft. (*M. Steele*). It differs from European specimens only by the broadly reddish sides of the abdomen, which are much as in *vulpina*.

LINNAEMYA SOMERENANA, sp. n., ♂

Ferruginous, parafrontalia and upper two-thirds of occiput infuscated, disc of mesonotum fuscous up to the *prst*, *pra* and almost to the *sa* laterally, and to the scutellar suture behind, pleurae almost wholly infuscated, including propleural depression ; first abdominal segment piceous-black, except for a moderately broad hind margin on each side, and on the second, a moderately broad median vitta, which fades out towards hind margin ; palpi brown, mentum piceous-black, antennae fuscous, slightly translucent dull-red ; tarsi piceous-black, trochanters fuscous well defined, the *a* surface of fore coxae with fuscous stripe, posterior coxae fuscous, all femora on about apical half of *a* surface with a piceous streak which extends somewhat further basad on *v* surface, the corresponding part of the tibiae with a narrow piceous streak, apex of tibiae infuscated.—*Head* densely dusted greyish-white, dust on parafrontalia, frontal triangle, temples and upper part of occiput pale brown ; frons at vertex fully a quarter (0·26) head-width, rather strongly dilated to lunula, where it is well over two-fifths (0·44) head-width, the sides concave behind, interfrontalia dull brown, at middle three-quarters width of a parafrontale, the latter with 10 inclinate setae, of which 4 descend on the parafacialia to level of arista, outer part of parafrontalia with numerous black setulose hairs, occiput with yellowish (above) and white hair behind postocular row, only on lower part with 1–2 rows of black setulae, jowls with black setulae and, anteriorly, 2–3 stronger bristles, ocellars not very strong, inner verticals very strong, decussate, outer verticals not differentiated ; parafacialia fully one-third, jowls two-thirds, as wide as eye at its smallest diameter. Third antennal segment only slightly broadened from basal third to apex, where it is somewhat obliquely rounded-truncate, the dorsal (anterior) angle being broadly obtuse, the ventral angle strongly rounded ; arista slender, evenly tapering.—*Thorax* with moderately dense brown-gold and brown dust on mesonotum and silver-grey and gold-grey dust on pleurae, the four vittae not very sharply defined, narrow, incomplete behind and interrupted at suture ; 3 +3 *acr* and *dc*, 1 +3 *ia*, the *post* ones strong, 5 strong humerals, *pra*

conspicuous but much weaker than second *npl* ; subapical scutellars almost twice as widely separated from each other as from basal scutellars, very strong, lateral scutellars strong, apical and preapical scutellars rather strong.—*Abdomen* somewhat oblong-ovate, strongly convex, hypopygium concolorous, somewhat prominent, fourth ventrite and superior forceps piceous ; some brown-gold dust visible in posterior view towards base of lateral part of the segments ; second segment with rather strong median discals and strong median and lateral marginals, third with strong median discals and a row of very strong marginals, fourth with a row of strong discals and marginals and some setae and strong setulose hairs on the margin itself, first genital segment with some erect stiff bristles, second with a transverse row of 3–4 pairs of setae.—*Wings* smoky subhyaline, somewhat more conspicuously smoky along the veins ; base of r_{4+5} with some setulae on node ; r_1 conspicuously exceeding level of *r–m*, which lies at middle of discal cell ; bend of *m* sharply angular, appendage almost twice as long as preceding section of *m*, apical cross-vein outwardly concave behind, almost straight towards margin, *m–m* oblique and sinuous. Calyptrae brown, subopaque, with concolorous border and fringe. Halteres pale reddish-yellow.—*Legs.* Fore tibia with 2–3 *p* setae and an *ad* row of about 8 small setae ; mid femur with 3–4 *a* setae at middle and 2 *av* amd 4 *pv* on basal two-fifths, mid tibia with 4 strong *ad* setae on basal two-thirds (the second and fourth very strong) and 2 small ones on apical third and with 1 strong *p* seta towards middle and a small one basad and distad to it (the type has lost one of the middle tibiae) ; hind femur with an *av* row of about 5 setae and 3–4 *pv* setae on less than basal half, hind tibia with 2 *av*, 3 *pd*, and an *ad* row of 4–5 setae interspersed with small ones.

Length 10·2 mm., of wings 8·4 mm.

UGANDA : W. Ruwenzori, 8–9000 ft., vi. 45 (*R. R. C. van Someren*), ♂ type.

LINNAEMYA SETINERVIS Mesnil

Mesnil 1952, *Bull. Inst. R. Sci. nat. Belg.* **28** (2) : 3.

BELGIAN CONGO : Plaine Semliki, Parc National Albert, 900–1000 m. In B.M. : from : UGANDA : Kiduru, 6. ix. 31 (*E. G. Gibbins*), 1 ♀. S. RHODESIA : Vumba Mts., 14. i. 37 (*Drysdale*), 1 ♀ (labelled by Villeneuve *Linnaemyia* (*Micropalpus*) *affinis* Corti). In this species the mentum is unusually long for the present group, but still about one-eleventh shorter than the height of the head. It is very closely related to *somerenana* and, according to Mesnil, also to *braunsi*. I have seen a specimen of the latter, named by Villeneuve and belonging to the South African Museum at Cape Town, but am not able to compare it now. Therefore, *L. setinervis* is contained in the key twice.

LINNAEMYA JOCOSA Karsch

Micropalpus jocosus Karsch 1886, 338.
n.syn. *Linnaemyia lamborni* Curran 1934, 7, 13.
n. syn. *Linnaemyia nyasa* Curran 1934, 7, 12.

Typical locality : ANGOLA : Pungo-Andongo : of *lamborni* : S. NIGERIA : Ibadan (type in B.M.) : of *nyasa* : NYASALAND : Mt. Mlanje (types in B.M.). In B.M. from : S. NIGERIA : Oshogbo, xi. 10 (*T. F. G. Mayer*), 1 ♂ (*jocosus*

var. Villeneuve det.). UGANDA : " Fafeo " (?), xi. 04 (*E. D. W. Greig*), 1 ♀ : Bunyoro, Budongo Forest, vii. 53 (*van Someren*), 5 ♂ ; Fort Portal, x. 31 (*E. G. Gibbins*), 1 ♂ (damaged). NYASALAND : Mt. Mlanje, 23. viii. 13 (*S. A. Neave*), 1 ♂, 10. ix. 13, 1 ♂, 11. ix. 12, 2 ♀, 24. ix. 13, 1 ♀, 17. x. 13, 1 ♂ (all these Nyasaland specimens det. by Villeneuve), the type and allotype of *nyasa* were collected on the 11. ix. 13 presumably together with the two females and named by Villeneuve. Seen from : BELGIAN CONGO : Elisabethville, iv. 33 (*De Loose*), 1 ♀ ; Bambesa, 14. v. 38 (*P. Henrard*), 1 ♀.

Though I have not seen the type of *jocosa*, the B.M. possesses several specimens labelled " *Micropalpus jocosus* Karsch." by Villeneuve. The types of *L. lamborni* and *nyasa* are in the B.M. The second specimen mentioned by Karsch with the locality Cape is, according to Villeneuve, 1914, 438, a specimen of *L. turbida* B.B.

LINNAEMYA TURBIDA Brauer & Bergenstamm

Brauer & Bergenstamm 1893, 96 ; Villeneuve 1914, 438 ; Curran 1934, 7, 21.

Typical locality : CAPE. Recorded from UGANDA : Lake George ; Kapepa ; Kaia River, W. Nile ; Fort Portal. BELGIAN CONGO : Katanga. NYASALAND : Mt. Mlanje. In B.M. from : Lake George and Mt. Mlanje and in addition : N. RHODESIA : Kipuchi, Congo border, 1. xii. 27 (*H. S. Evans*), 1 ♂ ; Broken Hill, 25. v. 12 (*E. A. Copeman*), 1 ♂. NYASALAND : Maiwale, 13. iii. 33 (*W. A. Lamborn*), 1 ♀. BELGIAN CONGO : Ruve, Lualeba R., c. 11° S., 26° E., ii. 06 (*A. Y. Massey*), 1 ♂ ; Elisabethville 1927 (*M. Bequaert*), 1 ♀ ; Biano, Katanga, 8–11. viii. 31 (*J. Ogilvie*), 1 ♀. TANGANYIKA : Songea, 3800 ft., 19. ii. 31 (*R. F. Johnstone*), 1 ♂. KENYA : 6200 ft., iv–v. 24 (*C. R. S. Pitman*), 1 ♂. UGANDA : Kapeka, 2. vii. 31 (*G. H. E. Hopkins*), 1 ♂. Seen from : BELGIAN CONGO : Niemba, Lukuga, xi. 17–i. 18 (*Pons*), 1 ♀ ; Lubumbashi, Elisabethville, 30. iii. 31 (*M. Bequaert*), 1 ♂ ; Elisabethville, ii. 37 (*Ch. Seydel*), 1 ♀ ; Jadotville, 1948 (*R. S. M. Adelaide*), 1 ♀.

LINNAEMYA PICTIPENNIS Curran

Curran 1927, 19 ; 1934, 15.

Typical locality : BELGIAN CONGO : Stanleyville. The only character distinguishing this species from *turbida* in Curran's key is the colour of the mesopleural hairs, and this character has proved to be variable in other species. However, the only two specimens with dark mesopleural hairs I have seen, show a small difference in the coloration of the wing as described in the key. The specimens were submitted by the Congo Museum, Tervueren, Belgium. They are from BELGIAN CONGO : Kibali-Ituri, x. 31 (*G. du Soleil*), 1 ♀.

LINNAEMYA ALBIFRONS Smith

Tachina albifrons Smith 1870, 532.

n. syn. *Micropalpus affinis* Corti 1895, 137 ; Villeneuve 1913, 27 ; Curran 1928, 298 ; 1934, 7, 20.

n. syn. *Micropalpus alopecinus* var. *peliotica* Speiser 1914, 10 ; Villeneuve 1914, 439.

n. syn. *Linnaemyia aptus* Curran 1934, 7, 19.

Typical locality : ANGOLA : Kinsembo, nr. Ambria, Loanda (type in B.M.) ; of *affinis* : ABYSSINIA : Galla,; of *peliotica* : CAMEROONS : Soppo ; of *apta* :

Uganda : Bujoma Forest (type in B.M.) ; Palango (in B.M.) ; Gold Coast : Yopi ; N. Territories (in B.M.) ; Nigeria : Ibadan ; Sudan : Talodi (paratypes in B.M.). Recorded from : Uganda. Nyasaland. Nigeria. Sierra Leone. Belgian Congo : Bukama, Kisantu (all by Villeneuve 1913).

Belgian Congo : Boma. Uganda : Kampala : Fort Portal Nwamga. Nyasaland : Mt. Mlanje. Kenya : Ngare Narok, Masai Reserve (all by Curran).

In B.M. from : Nyasaland : Mt. Mlanje, 6. xii. 12, 31. xii. 12, 26 and 27. viii. 13 (*S. A. Neave*), 4 ♀, Karonga, 7–11. vii. 10 (*S. A. Neave*), 1 ♂ ; Fort Johnston, 2000 ft., 1910 (*A. H. Barclay*), 1 ♀. Belgian Congo : Kabinda, 1914 (*J. Schwetz*), 1 ♂ ; Lufira R., Katanga,3 500 ft., 17. viii. 07 (*S. A. Neave*), 1 ♀. Uganda : (*D. Bruce*), 2 ♂, 3 ♀, 1911 (*C. H. Marshall*), 2 ♂, 1 ♀ ; Kampala, 10. ix. 15 (*C. C. Gowdey*?), 1 ♂ ; Unyoro District (*C. H. Marshall*), 2 ♂, 1 ♀ ; Namasagali 1915 (*H. Hutchinson*), 1 ♂, 1 ♀ ; nr. Muzizi River, 13. viii. 12 (*C. H. Marshall*), 1 ♂ ; Butcra, 10. viii. 12 (*C. H. Marshall*), 1 ♂ ; Fort Portal, x. 31 (*E. G. Gibbins*), 1 ♀ ; Mwamba, C. L., 26. ix. 31 (*E. G. Gibbins*), 1 ♀ ; Entebbe, 27. v. 12 (*C. C. Gowdey*), fragment ; S. Ankola, River Chiriruma, upper part, 20. viii. 12 (*R. E. McConnell*), 1 ♂ ; N. Usoga, 1906 (*A. Hodges*), 1 ♀. Kenya : Jinja, 25. x. 30 (*E. G. Gibbins*), 1 ♂ ; Diani Beach, viii. 51 (*N. L. H. Krauss*), 3 ♀ ; Ngare Narok, Masai Reserve, 6000 ft., 31. xii. 13 (*A. O. Luckman*), 1 ♂, 1 ♀. Tanganyika : Old Shinyanga, 4. iii and 9. v. 52, 2 ♀, 12. v. 52, 1 ♀ (*E. Burtt*). S. Nigeria : Oshogbo, 20–30. ix. 10 (*T. F. G. Mayer*), 2 ♀ (1 without abdomen, the other without discals on the second segment) ; 1–10. x. 10, 1 ♀, xi. 10, 1 ♀ ; Bende, 23. v. 10 (*J. J. Simpson*), 1 ♀ ; Aboh, River Niger, 1. iv. 11 (*T. Hood Rankin*), 2 ♀. N. Nigeria : Zungeru, xi. 10 (*J. J. Simpson*), 1 ♂. Gold Coast : Obuasi Ashanti, 8. i. 08 (*W. M. Graham*), 1 ♀. Sierra Leone : Yiraia, 6. vi. 12 (*J. J. Simpson*), 1 ♂. Seen from : Uganda : Katikakabu-Mutala, 24. xi. 41 (*Govt. Ent. Uganda*), 1 ♀ ; river Lugogo, 2nd time, 18. vi. 41 (*Govt. Ent. Uganda*), 1 ♂ ; Kyahetolaga-Mutala, 29. iv. 41 (*Govt. Ent. Uganda*), 1 ♂ ; Kampala, 3. iv. 26 (*G. L. R. Hancock*), 1 ♂ ; Mile 10, Kampala-Entebbe Road, 20. vi. 37, in forest (*T. W. Chorley*), 1 ♂ ; River Patongo, Gulu District, 13. xi. 37 (*T. W. Chorley*), 1 ♀ ; Kitiguma, vi. 34 (*G. H. E. Hopkins*), 1 ♀ ; Bwamba, vii. 44 (*G. R. C. van Someren*), 1 ♂, vii. 45, 1 ♀. Kenya : Chyulu Hills, 5200 ft., iv. 38 (*Corynd. Mus. Exp.*), 1 ♂ ; Nairobi, vii–viii. 36, 1 ♀ ; Jinja, ix. 28 (*V. G. L. van Someren*), 1 ♀ ; Rabai, viii. 37 (*V. G. L. van Someren*), 1 ♂ ; Kwale, vi. 48 (*van Someren*). Belgian Congo : Elisabethville, ii and iv. 33 (*De Loose*), 2 ♀ ; Lubumbashi, Elisabethville, 9. iv. 21 (*M. Bequaert*), 1 ♀ ; Dingila, Uele, 15. vii. 13 (*J. V. Leroy*), 1 ♀ ; Bambesa, 11 and 14. v. 38 (*P. Henrard*), xii. 33 (*H. J. Bréla*), 10. iv and 6. vi. 37 (*J. Vrydagh*) ; Nyangwe, iv–v. 18 (*R. Mayné*) ; Terr. de Banningville, Mpo riv. Lune, 1945 (*Fain*) ; Lusuku, Lomami, ix. 30 (*P. Quarré*) ; Mayumbe, Makungu Duango, 15. i. 26 (*A. Collart*) ; Kinda, Kitundu, 19. ix. 14 (*L. Charliers*) ; Kilo, 1936 (*G. du Soleil*) ; Kalembelembe-Baraka, vii. 18 (*R. Mayné*) ; Mont Wago, Ituri, 24. xi. 28 (*A. Collart*) ; Kaniama, Lomami, iii–iv. 32 (*R. Messart*) ; Kapanga, xi. 33 (*G. F. Overlaet*). Sierra Leone : Finfonia, 22. ix. 49 (*F. H. Squire*), 1 ♀. S. Rhodesia : Victoria Falls, xi. 19 (*H. E. Raven*) ; Jersey, Melsetter Dist. 11. xi. 48 (*J. A. Whellan*), 1 ♂.

The present species has been identified "*affinis* Corti" by Villeneuve, but he has also identified the type of *L. villeneuvei* as "*affinis*". Corti's description ("secondo articolo dell' arista brevissimo, Palpi neri") applies perfectly to *albifrons* but not to *villeneuvei*.

LINNAEMYA ALOPECINA Speiser

Micropalpus alopecinus Speiser 1910, 137; Villeneuve 1914, 439.
n. syn. *Linnaemyia conformis* Curran 1927, 19; 1928, 398, 399; 1934, 15.
n. syn. *Linnaemyia shillitoi* Curran, 1934, 7, 17.

Typical localities: TANGANYIKA: Kilimanjaro, Meru, 3000 m. (I have seen the type in Stockholm); of *conformis*: BELGIAN CONGO: Stanleyville. SIERRA LEONE (in B.M.). GOLD COAST (in B.M.); of *shillitoi*: UGANDA; Nyakaxura (in description misprinted), Toro (type in B.M.). Recorded from: NATAL, NYASALAND, KENYA, ABYSSINIA, and NIGERIA (all by Villeneuve). NATAL: Isipingo, Illovo; Port Shepstone. NYASALAND: Mt. Mlanje. KENYA: Solai District; Ngare. Uganda: Ibanda, Kampala (all by Curran). In B.M. from: NATAL: Durban, 10. vi. 37 (*W. F. Jepson*), 1 ♀. NYASALAND: Mt. Mlanje, 16. ix. 13 (*S. A. Neave*), 2 ♀, 27. viii. 13, 1 ♀. TANGANYIKA: Songea, 4200, 12. iii. 33 (*R. F. Johnstone*), 1 ♂; Ufiomi, 3. vi. 16, in well watered valley (*W. A. Lamborn*), 1 ♂, 1 ♀; Lushoto, 1934–35 (*J. P. Ingram*), 1 ♀, Nguelo, Usambara (collector unknown), 1 ♂, 1 ♀. KENYA: Nairobi, vii. 30 (*V. G. L. van Someren*), 5 ♀; Kabete, 31. x. 18 (*T. J. Anderson*), 1 ♀; Mogorr River, v. 13 (*A. O. Luckman*), 2 ♀ (one with only one proclinate seta on both sides); Ngare Narok, Masai Reserve, c. 6000 ft., 31. xii. 13 (*A. O. Luckman*), 1 ♀; Solai District, Sonje Valley, Laikipia Escarpment, 14. ix. 19 (*T. J. Anderson*), 1 ♀; Katamaya, Aberdares, 8000 ft., x. 34 (*F. W. Edwards*), 1 ♀; El donyo eb Viru, v–vii (*C. S. Betton*), 2 ♀. UGANDA: Mpanga Forest, Toro 4800 ft., 13–23. x. 11 (*S. A. Neave*), 1 ♀; Bugoma, 17. vi. 10 (*C. C. Gowdey*), 1 ♀. S. NIGERIA: Oshogbo, 10. ix. 10, caught in the house (*T. F. G. Mayer*), 1 ♀. GOLD COAST: (*W. P. Lowe*), 1 ♂ (propleural depression darkened). SIERRA LEONE: Ka-yima, 23. vi. 12 (*J. J. Simpson*), 1 ♀; Iamadu 26. vi. 12 (*J. J. Simpson*), 1 ♀. Seen from: ZULULAND: Eshowe, 28. vi. 37 (*B. de Meillon*), 1 ♀. KENYA: Naivasha, vii. 37 (*H. J. A. Turner*), 3♂, 1 ♀; Nairobi, vii. 37 (*V. G. L. van Someren*), 1 ♀; Kuja River, 11. ix. 32 (*C. B. Symes*), 1 ♂, 1 ♀; Ngong, v. 36 (*Miss Steele*); Nakuru, x. 37, bred ex *Schausinna clementsi* (*A. Townsend*); Kikuyu, 29. v. 51, ex *Plusia orichalcea* (*R. H. Le Pelley*), 1 ♂, 1 ♀. UGANDA: Bugishu, Siroko River, 7–12. iv. 21 (*G. D. H. Carpenter*), 1 ♀. BELGIAN CONGO: Blukwa, Ituri, 12. i. 29 (*A. Collart*), 1 ♂; Lulumbashi, Elisabethville, 22. iii. 21 (*M. Bequaert*); Mahagi-Niavembe, v. 35 (*Ch. Scops*); Bambesa, 1. x. 34 (*J. V. Leroy*); Ibanda, W. Kivu, 1935 (*Vandelannoite*). ABYSSINIA: Irga-Alem, 13, 16, 18, 22. ix. 35 (*Saska*); Gidabo, Irga Alem, 25. ix. 35 (*Saska*).

The type of *shillitoi* Curr. has the black band along the antero-interior surface of the coxa and would in Curran's key be traced to *conformis* and not to *shillitoi*. But for the first two letters of the name of the locality the data on the label are as stated by Curran, so there can be no question of a mistake in labelling the type, the other species in the material collected by M. J. F.

Shillito and studied by Dr C. H. Curran having been collected on different days. I have not been able to trace a description of *L. tarsalis* Villen. (mentioned by Curran 1934, 16) but specimens in B.M. identified by Curran as *tarsalis* Villen. are this species as suggested by Curran.

LINNAEMYA ANDREWESI, sp. n., ♂ ♀

Pale ferruginous, parafrontalia and most of occiput infuscated, disc of mesonotum fuscous, laterally up to the *ph* and *prst* and beyond the *post ia*, behind to the second *post acr* and the last *post dc* and *ia*, pleura wholly fuscous except for the shoulders ; abdomen with wholly fuscous-black (♂) or fuscous (♀) first segment, except for a pale hind margin on each side, second and third segments with a broad dark median vitta, which exceeds laterally the median pairs of setae, third segment in female infuscated between vitta and lateral surface, with paler front and hind margins, fourth largely infuscated with the hind margin moderately broadly orange. Mentum and palpi fuscous (♂) or brown (♀) ; antennae fuscous, apex of second segment narrowly translucent orange, more conspicuously so in female ; legs of female as in *somerenana*, of male largely fuscous to piceous-black with a dull-ferruginous streak along outer surface of coxae and apical part of *d* surface of femora, tibiae as in *somerenana*.—

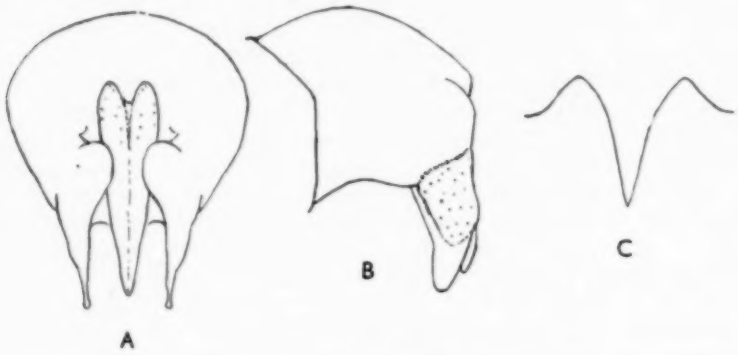

Fig. 4.—*Linnaemya andrewesi* sp. n. A, superior and inferior forceps, with hairs omitted, posterior view ; B, the same, left side ; C, median cleft in posterior margin of fourth visible ventrite, ventral view.

Head densely dusted greyish-white, somewhat chalky, dust on parafrontalia and frontal triangle somewhat brownish ; frons of male at vertex almost one-third (0·31) head-width, strongly dilated with concave sides to lunula where it is almost one-half (0·48) head-width, interfrontalia testaceous, slightly dilated forward, almost as wide at middle as a parafrontale, the latter with setae and hairs as in *somerenana* ; frons of female at vertex more than one-third (0·36) head-width, strongly dilated with very slightly concave sides to lunula where it is more than one-half (0·54) head-width, interfrontalia at middle two-thirds width of a parafrontale, the latter with 7–9 inclinate setae, of which 3–4 descend on parafacialia to level of arista, outer part, in addition

to the black hairs, with 2–3 strong proclinate orbitals and, above them, a moderately strong praevertical ; ocellars rather strong, inner verticals very strong, decussate, outer verticals indistinct in male, strong in female ; parafacialia almost half, jowls three-quarters, width of eye at smallest diameter. Third antennal segment not quite as wide as parafacialia, strongly (♂) or moderately (♀) humped at base of arista, dorsal (anterior) edge strongly (♂) or moderately (♀) emarginate, apex somewhat obliquely truncate ; arista somewhat stout, about as long as third antennal segment, slightly elbowed, second segment 4–5 times as long as wide.—*Thorax* with moderately dense greyish-white dust and 4 rather conspicuous narrow black vittae ; 3 +3 strong *acr* and *dc*, especially the latter, 0 +3 strong *ia*, *pra* subequal to second *npl* ; subapical scutellars much more widely separated from each other than from basal scutellars, apical scutellars rather strong, preapicals conspicuous, 2–3 of them close to level of apicals.—*Abdomen* ovate, first segment with strong lateral marginals, second and third with rather strong median discals, second with very strong median marginals, third with a row of very strong marginals, fourth in addition to a row of very strong discals and strong marginals with numerous irregular erect setae and setulae ; hypopygium of male orange, somewhat prominent, bristles of genital segments as in *somerenana*.—*Wings* greyish subhyaline ; base of r_{4+5} setulose almost halfway to *r–m* ; r_1 conspicuously exceeding level of *r–m*, which lies at middle of discal cell, bend of *m* obtuse but angular, appendage longer than preceding section of *m* (in male more than twice as long), apical cross-vein gently concave outwardly in posterior part, almost straight in anterior two-thirds, *m–m* oblique, moderately sinuous. Calyptrae opaque greyish-white with concolorous border and silver-white fringe. Halteres pale reddish yellow.—*Legs* rather stout ; fore tibia with 3 successively stronger *p* setae and an *ad* row of 8–9 small setae ; mid femur with 2 (type) –5 (paratype) *a* setae towards middle 2–3 *av* and *pv* setae on basal two-fifths and an *av* and *pv* row of rather conspicuous setulose hairs near apex, mid tibia with 1 *v*, 3 *p* and 5 *ad* setae, the first of these strong, the second and fourth very strong ; hind femur with an *av* row of about 6 strong setae and on basal half 3 long and strong *pv* setae, hind tibia with 2 *av* and 3 *pd* setae, between the second and third of these a small fourth seta, *ad* surface with a row of about 8 alternatingly small and strong setae.

Length c. 9–10·0 mm., of wings 7·8–c. 8 mm.

Cape Province : Ongeluks Nek, 14. xi. 54 (*C. H. Andrewes*), ♂ type ; Somerset East, x. 30 (*R. E. Turner*), 1 ♀ paratype.

The species is extremely similar to *variegata* in coloration, shape of antennae, arista, etc., but the wings are wholly covered by microscopic hair except for a narrow bare streak along basal part of anterior and posterior borders of discal cell. The jowls are covered with black bristles, some of which are strong (whilst in *variegata* they are all fine and all or almost all whitish). The male genitalia (Fig. 4) are very different, the inferior forceps being testaceous with straight sides in lateral view and broadened base in ventral view, whereas in *variegata* it is piceous with convex sides in lateral view, vertically placed and almost linear in ventral view.

LINNAEMYA ELGONICA, sp. n., ♀

Pale ferruginous ground-colour, greater upper part of occiput (except cerebrale) and disc of mesonotum (to the *ph*, *prst*, *sa* and last *dc*) fuscous-black, scutellum and a transverse spot extending forward from it to almost second *post dc* and *acr* pale, metanotum and most of pleura fuscous-black ; shoulders, centre of propleural depression, upper three-fourths of mesopleura and a suffused spot on upper part of each sternopleuron and pteropleuron pale ; abdomen pale ferruginous with a rather broad black median vitta, which is overlaid with thin grey and brown dust and which, though being continuous, consists of spots of different shape on the various segments, that on the second being trapezoidal and as long as wide, the greatest width lying at hind margin, that of the third very broadly subtriangular, about as wide at base as that of second segment but twice as wide behind middle of segment, slightly narrowed from there to hind margin, spot of fourth segment of similar shape but not extending beyond four-fifths of the segment, except on a median vitta which leaves only a narrow margin pale behind ; palpi and mentum piceous, antennae fuscous with the base of the third segment narrowly translucent dull orange ; legs pale ferruginous, fore coxa with a fuscous streak on *av* surface, mid coxa suffusedly piceous-brown at base of anterior surface, femora narrowly piceous-brown at base, tarsi piceous-black.—*Head* rather densely gold-dusted anteriorly and on outer part of parafrontalia, upper part of parafacialia with a transverse shifting brown spot, ground-colour of parafrontalia brown, becoming blackish-brown towards interfrontalia and upper part of eyes ; frons at vertex one-quarter head-width, strongly dilated with almost straight sides to lunula, where it is almost three-fifths (0·58) head-width, interfrontalia rusty-brown, two-thirds as wide at middle as a parafrontale, the latter with 8–9 inclinate setae, of which the hindmost is the strongest and mainly reclinate and of which 2–3 descend on parafacialia almost to middle level of second antennal segment, parafrontalia with black hairs and setulae, mainly outward to the setae, upper half with 2 strong proclinate orbitals and with or without a small praevertical seta, ocellars strong, inner verticals very strong, decussate, outer verticals indistinct, hair of occiput yellowish white, of jowls sparse, black with interspersed small yellow hairs ; parafacialia one-third, jowls two-thirds, as wide as the eye at its smallest diameter. Second and third antennal segments dusted brown on anterior and outer surfaces, third segment evenly and not very strongly broadened towards apex, which is obliquely rounded-truncate ; arista moderately long, evenly tapered, second segment almost as long as apical width of second antennal segment.—*Thorax* not very densely dusted greyish-white, in front of suture with four, behind suture with three, moderately broad undusted vittae, the outer ones reaching level of second *post dc* ; 3+3 *acr* and *dc*, 0+3 strong *ia*, *pra* subequal to second *npl*, a small seta between it and the *sa* ; subapical marginals of scutellum almost as widely separated from each other as from the basal marginal and about half as much again as from the lateral marginal, all of them strong, apical marginals well developed, decussate, 2 pairs of preapical discals.—*Abdomen* subcircular in outline, with trapezoidal *Winthemia*-like

fourth segment, apex of the latter narrowly truncated ; pollinosity greyish-white, not very dense, more conspicuous in the incisures and towards lateral surface, especially of fourth segment, the black median vitta with some fuscous-brown dust ; first and second segments with strong lateral marginals, second and third each with two pairs of median discals, third also with a row of very strong marginals consisting of two pairs, fourth with a row of strong discals and moderately strong marginals, each consisting of 2–3 pairs.—*Wings* greyish subhyaline with a brownish tinge, basal part brownish-orange, veins suffused with brown, especially *sc*, r_1, basal half of r_{4+5} and *m*, setula on base of r_{4+5} restricted to both surfaces of node, r_1 exceeding level of *r–m*, which lies towards middle of discal cell, bend of *m* forming a pronounced angle of about 90°, the apex of which tends to be even somewhat acute, appendage almost twice as long as preceding section of *m*, apical cross-vein outwardly concave behind, almost straight towards margin, *m–m* conspicuously sinuous and markedly oblique. Calyptrae brownish subopaque with pale brownish border and pale yellowish fringe. Halteres dull reddish-yellow with the base of the knob browned.—*Legs* : fore tibia with 2 *pv* and 3 *ad* setae, the latter alternating with very small setae ; mid femur with 2 strong *a* setae at middle, 2 strong *av* and 2–3 strong *pv* setae about basal third, a row of rather strong *av* and *pv* setulae on apical third and 4 preapicals from *p* to *ad*-surfaces ; mid tibia with three *ad* setae, the third of which is much the strongest and lies slightly beyond middle, one strong *av* beyond middle, two *p* and, slightly beyond, 1 small *pd* seta, hind femur with about 4 strong *av*, 4 even longer *pv* setae and a few fine long *p* to *pv* setae at base, hind tibia with an *av* seta beyond middle, 2 *pd* and 2 *ad*, the latter alternating with small setae.

Length of body and wings 8·8 mm.

UGANDA : Mt. Elgon, 17. i. 55 (*M. C. Williams*), ♀ type.

LINNAEMYA INGRAMI Curran

Curran 1934, 23.

n. syn. *Linnaemyia andersoni* Curran 1934, 24.

Typical localities : NYASALAND : Mt. Mlanje. CAPE PROVINCE : Barberton. TANGANYIKA : Kilossa. KENYA : Nairobi ; Nagob, Ruiru, Magerama. GOLD COAST : Ashanti. Of *andersoni* : KENYA : Sonje Valley, Solai District. UGANDA : Nyakasura, Toro. S. RHODESIA : Usutali. In B.M. from : NYASALAND : Mt. Mlanje, 28. iv. 13 (*S. A. Neave*), ♂ type,* 27. viii. 13, ♀ " allotype " of *ingrami*, 11. ix. 13, 1 ♀ paratype. Zomba (*H. S. Stannus*), 1 ♀, 10. x. 11, 3000 ft. (*R. Drummond*), 1 ♀. TRANSVAAL : Johannesburg, 18. x. 54 (*C. H. Andrewes*), 1 ♀. TANGANYIKA : Kilossa, 19. vi. 22 (*A. Loveridge*), 1 ♀ ; Lushoto, 1934–35 (*J. P. M. Ingram*), 1 ♀ ; S. of Bukavu, 28. viii. 31 (*T. D. A. Cockerell*), 1 ♀ ; Nguelo, Usambara (collector unknown), 1 ♂. BELGIAN CONGO : Stanleyville, ix. 27 (*J. Schwetz*), 1 ♀ ; Dilolo, Katanga, 24–27. vii. 31 (*J. Ogilvie*), 1 ♂, 1 ♀. UGANDA (*C. L. Marshall*), 1 ♀ ; (*D. Bruce*), 1 ♂ ; Mpanga Forrest, Toro, 4800 ft., 13–23. xi. 11 (*S. A. Neave*), 1 ♀ ; between Seziwa R. and Kampara, 3500–3750 ft., 27–31. viii. 11 (*S. A. Neave*), 1 ♂, between Jinja and Busia or Mbwago's, E. Busoga, 3800–4000 ft., 28 vii.–

* The type is actually labelled only " 28. IV. 13. S.A.N." in addition to Curran's type label.

1. viii. 11, some forest (*S. A. Neave*), 1 ♂, 1 ♀; S. E. Buddu, Toro Forest, 3800 ft., 26–30. ix. 11 (*S. A. Neave*), 1 ♀; Mabira Forest, Chagwe, 3500–3800 ft., 16–25. vii. 11 (*S. A. Neave*), 1 ♀; Mile 35 Masaka Road, 3. iv. 31 (*H. Hargreaves*), 1 ♂; Bugoma, 17. vi. 10 (*C. C. Gowdey*), 1 ♂. KENYA: Sonje Valley, Solai District, Laikipia Escarp., 15. ix. 19 (*T. J. Anderson*), ♂ type of *L. andersoni* Curr., 14. ix. 19, ♀ allotype of *L. andersoni*. ABYSSINIA: Gatelo Amaiyu, 4. xi. 11 (*R. J. Stordy*), 1 ♂. GOLD COAST: Kumasi, Ashanti, 23. x. 07, on bushpath (*W. M. Graham*), 1 ♂. SIERRA LEONE: Kruto, 1924 (*D. B. Blacklock*), 1 ♀; Bagwema, 1924 (*D. B. Blacklock*), 2 ♂, 1 ♀. Seen from: UGANDA: Kampala, 19. iii. 09 (*C. C. Gowdey*); Bwamba Valley, vii. 21. KENYA: 01 Arabel Valley, Laikipia, 19. v. 34, in tent (*E. A. Lewis*), 1 ♀; Chyulu Hills, 6000 ft., vi. 38 (*Coryndon Mus. Exped.*), 1 ♀; Nairobi, vii. 30 (*V. G. L. van Someren*), 1 ♀ paratype. BELGIAN CONGO: Bambesa, 15. ix. 33, vii. 34 (*H. J. Brédo*); Stanleyville, vi. 29 (*A. Collart*); Lubumbashi, Elisabethville 3 and 14. vi. 20 (*M. Bequaert*); Elisabethville, x–xi. 34 (*Richard*); Kasai, Lulua, 1928 (*Walker*); Yindi, Kibali-Ituri, x. 48–iii. 49 (*A. E. Bertrand*). GOLD COAST: Offinsu, 21. iv. 49 (*J. Bowden*). Imperfectly coloured specimens of *turbida* might be traced to the present species, but in *turbida* the fourth abdominal segment appears entirely golden dusted in dorsal view, and the fore tarsi of the female are much more dilated.

There is in addition a female labelled "Africa Stordy Coll. 1912–329" in the B.M. It has the characters of this species, but the third abdominal segment has a median vitta which is extended into a complete broad transverse black band, the fourth also has a broad transverse black band which leaves only the basal margin pale except on median line. The apical part of the wing is less distinctly darkened, and the longitudinal veins are all rather conspicuously suffused with yellowish-brown. In view of the indefinite locality, female sex and poor condition it seems undesirable to name this single specimen, although it seems rather difficult to consider it simply as a variation of *ingrami*.

LINNAEMYA ARGYROZONA, sp. n., ♂ ♀

Ferruginous with infuscated parafrontalia, the greater upper half of the occiput and the disc of the mesonotum fuscous, laterally up to the *ph*, *prst*, *pra* and *sa* and behind almost to the scutellar suture, pleura more or less largely infuscated, abdomen with a rather broad piceous-black median vitta, which is more or less completely divided into spots, the spot of the first segment large, broadly reaching hind margin, that of the second reaching front and hind margins and extending sideward beyond the median discals and marginals, ovate, more narrowed in front than behind, that of the third similar but not always reaching front margin, that of the fourth small, not always reaching middle; antennae largely fuscous, but all margins more or less translucent reddish-orange, palpi ferruginous; legs pale-ferruginous with the distal tarsal segments infuscated and the tip of the claws piceous.—*Head* densely dusted pale yellowish-grey, on occiput more whitish-grey; frons of male at vertex almost one-quarter (0·24) head-width, in female slightly wider (0·25–0·30), rather strongly dilated with somewhat concave or almost straight sides to

lunula, where it is fully one-half (0·5–0·57) head-width, interfrontalia rufous-brown, moderately dilated forward, almost as wide to half as wide again at middle as a parafrontale, the latter in male with 10–11, in female with 8 strong inclinate setae, of which about 3 descend on parafacialia to apical level of second antennal segment, and of which the uppermost is strong and reclinate, upper part of parafacialia and anterior part of parafrontalia to the outer sides of the descending frontal setae with an irregular row of weaker setae and setulae, outer part of parafrontalia with numerous black setulose hairs and, in female, a not very strong praevertical and 2 strong proclinate orbital setae ; ocellars strong, inner verticals very strong, decussate, outer verticals weak but distinct, at least in female ; parafacialia fully one-third, jowls two-thirds, as wide as eye at its smallest diameter. Third antennal segment somewhat dilated from basal fourth to apex, the latter obliquely truncate, the dorsal angle broadly and obtusely rounded, the vertical angle strongly rounded ; arista slender, evenly tapering, second segment 3–4 times as long as wide.—*Thorax* with not very dense greyish-white dust, the four undusted vittae narrow, not much contrasting ; 4+3 *acr*, 3–4+3 *dc*, 3 strong *post ia*, the *prst* one hairlike, *pra* rather strong, subequal to second *npl* ; subapical scutellars somewhat more widely separated from each other than from basal scutellars, lateral scutellars strong, apical and preapical scutellars well-developed.—Abdomen very short-ovate, hypopygium concolorous, prominent though not very large, fourth ventrite and forceps piceous ; base of segments with a rather broad and conspicuous band of moderately dense silver-white dust ; first segment with 1–2 strong lateral marginals on each side, second with 2–3 strong lateral marginals and a pair of strong median marginals and discals, third with a pair of strong median discals and a row of very strong marginals, fourth with a row of strong discals and marginals, the margin itself with numerous smaller setae and long stiff setulae, genital segments of male, especially the second, with some stiff, erect bristles.—*Wings* subopaque, more strongly browned along the veins, which are largely dark brown ; setulae on base of r_{4+5} hardly exceeding node venation as in *somerenana*, bend of *m* broadly obtuse but forming a well-defined angle. Calyptrae as in *somerenana*, in female more brownish-ochraceous. Halteres dull reddish-yellow.—*Legs* : fore tibia with 2 *p* setae, some small *pd* ones and a row of about 6 small *ad* setae ; mid femur with 2–3 strong *a* setae near middle, 3–4 long and strong *av* and *pv* on basal half and a row of half-erect *av* and *pv* setulae on apical part, mid tibia with 1–2 *av*, 2 *p* setae, 1–3 small *pd* and 4 *ad*, the second and third of which are much stronger ; hind femur with an *av* row of 6–7 setae and with 3–4 long and strong *pv* setae on basal half or slightly more, hind tibia with (1–) 2 *av* setae, 2(–3) *pd* and an *ad* row of 4–5 setae, the second and third of which are the strongest.

Length 8·3–9·3 mm., of wings 8·3–8·6 mm.

KENYA : Mt. Kenya, 23. iv. 35 (*G. N. R. Hancock*), ♂ type, 1 ♂ paratype ; West of Mt. Kenya, 6500–7250 ft., 14–20. ii. 11 (*T. J. Anderson*), 1 ♀ paratype. TANGANYIKA : E Meru, 7–8000 ft., i. 38 (*B. Cooper*), 1 ♀ paratype.

LINNAEMYA GOWDEYI Curran

Curran 1934, 7, 16.

Typical localities : UGANDA : Mt. Ruwenzori, 10,000 ft. (in B.M.). In B.M. from : UGANDA : Mt. Ruwenzori (type) ; Ruwenzori, 10,000 ft., 16. v. 11 (*C. C. Gowdey*), 1 ♀ without abdomen ; Ruwenzori, Bwamba Valley, vii. 45 (*G. R. C. van Someren*), 1 ♀. Seen from : W. Ruwenzori, 8–9000 ft., vii. 45 (*G. R. C. van Someren*), 1 ♀, vii. 46, 1 ♀.

LINNAEMYA PROHECATE Speiser

Micropalpus prohecate Speiser 1910, 135. I have seen the type in Stockholm.
Hecatoepalpus prohecate Townsend (1932) 1939, **8**: 235.

Typical locality : TANGANYIKA : Kilimanjaro. Recorded from NYASALAND : Lake Nyasa (*Townsend*). In B.M. from : TANGANYIKA ; Lushoto, 1934–1935 (*J. P. M. Ingram*), 1 ♀. UGANDA : Mabira Forest, Chagwe, 17–20. vii. 11 (*C. C. Gowdey*), 1 ♀. KENYA : Mogorr River, 1913 (*A. O. Luckman*), 1 ♀ ; W. slope of Kenya on Meru–Ngeri Road, 6000–8000 ft., 16–23. ii. 11 (*S. A. Neave*), 1 ♀ ; Laikipia, nr. Ol Arabel R., 18. v. 34 (*E. A. Lewis*), 3 ♂, 2 ♀. Seen from KENYA : Katamayu, iii. 42 (*V. S. L. van Someren*), 1 ♀ ; Kaimosi (S.), ii. 49 (*V. G. L. van Someren*), 1 ♀.

LINNAEMYA VICTORIA Curran

Curran 1934, 7, 16.

Typical localities : S. RHODESIA : Vumba. UGANDA : Nyakasura (misprinted in original description), Toro (paratype in B.M.). In B.M. from : UGANDA : Entebbe, 21. viii. 11 (*C. C. Gowdey*), 1 ♂, 1 ♀. Seen from S. NIGERIA: Lagos, nr. Oni clearing, wet season, c. 25. iv–15. xi. 10, from pupa of a Syntomid, presumably *Metarctea* sp. (*T. H. C. Taylor*, W. H. T. Tams det., larva on fern), (*S. A. Lamborn*), 1 ♂ (in Hope Museum, Oxford).

The three specimens from Entebbe and Lagos have no clearly defined abdominal spots but otherwise they fit Curran's species perfectly.

LINNAEMYA FLAVITARSIS, sp. n., ♂ ♀

Pale ferruginous, disc of mesonotum fuscous laterally to the *ph* and *ia* and behind to the last *dc* and second *post acr*, the border of the dark part running forward from the last *dc* to the last but one and metanotum piceous brown, occiput infuscated behind upper part of each eye ; abdomen with a more or less faint suffused rufous-brown band along hind margin of third segment, and with or without excavation. Antennae dull reddish-orange, largely infuscated on disc of segments ; palpi minute, pale orange ; mentum testaceous.—*Head* with rather dense pale-gold dust, which is more yellowish-white on face, with shifting darker spots on occiput, cerebrale undusted, pale ferruginous ; frons of male at vertex one quarter, of female almost one-third (0·32) head-width, moderately dilated with almost straight sides to lunula, where it is more than two-fifths (0·43–0·44) head-width, interfrontalia orange, evenly slightly dilated forward, more than half as wide again at middle as a parafrontale, the latter with 8 reclinate setae, of which the last is stronger and reclinate, and of which the first 3–4 descend on the parafrontalia almost to apical level of second antennal segment, to the outer side of the inclinate

setae with fine black hairs and, in female, 2 strong proclinate orbitals but no praevertical, ocellars rather strong, inner verticals very strong, decussate, outer one not differentiated ; parafacialia not quite one-third, jowls more than two-thirds, width of eye at its smallest diameter. Third antennal segment as in *argyrozona* ; arista slender, evenly tapering, second segment less than twice as long as wide.—*Thorax* not very densely dusted whitish or pale-gold, the undusted vittae fuscous, moderately contrasting, narrow ; 3–4 +3 *acr* and 3–4 +3–4 *dc*, the paratype having 3 strong *post dc* and the type 4 strong ones, the second of them being somewhat weaker, 1 +3 *ia*, the *prst* one weak, *pra* subapical to second *npl* ; subapical scutellars strong, apical and preapical scutellars moderately strong, the former decussate.—*Abdomen* ovate (♂) to short-ovate (♀), very thinly dusted whitish to pale-gold, more distinctly so on fourth segment, hypopygium wholly concolorous, not much protruding ; first segment with 1–2 pairs of lateral marginals, second with a pair of median discals and marginals and with weak lateral marginals, third with a pair of median and 1–2 pairs of lateral discals and a row of marginals, fourth with a row of discals and marginals, the paramedian pair of discals somewhat shifted forward and the row of marginals subinterrupted at middle, and followed in female by a row of weaker but quite conspicuous setae at the very margin ; second genital segment of male with some conspicuous, stiff erect bristles.—*Wings* brownish subopaque with the anterior basal part up to apex of r_1 more orange, veins orange with distal part brown ; setulae at base of r_{4+5} not exceeding node ; venation as in *somerenana*, but appendage of the bend of *m* shorter than preceding section of *m*. Calyptrae brown subopaque with pale-brownish border and golden fringe. Halteres dull reddish-yellow.—*Legs*: fore tibia with 2 strong *p*, 1–2 very small *pd* and a row of 6 small *ad* setae ; mid femur with 2 *a* setae near middle, and, on basal half, 3–4 fine *pv* setae, but without conspicuous *av* setae, apical part with a row of half-erect *pv* setulae, mid tibia with 1 *v*, 2 *p*, 1–2 small *pd* and 3 *ad* setae, the second of which is the strongest ; hind femur with about 6 *av* setae and, near base, with some long fine erect pale *v* hairs and strong *a* setae, *pv* surface with 3–4 strong *pv* setae on slightly more than basal half, hind tibia with 1–2 *av* setae, 2 *pd* and 4 *ad*, the third of which is the strongest.

Length 8·0–10·3 mm., of wings 7·6–8·5 mm.

Uganda : Bwamba Valley, vii. 45 (*R. C. van Someren*), 1 ♂ type ; Mt. Sabinio, Kigezi Distr., 7000 ft. (*F.W.E.*), 1 ♀ paratype. I have seen another male collected by M. P. Basilewsky in the Belgian Congo : Bururi, Urundi, 1800–2000 m. 5–12. iii. 53. It differs from the Bwamba male by the median vitta of the first tergite being piceous-black and the prosternum bearing numerous erect pale hairs ; the sector of *m* between *m–m* and bend is less than half as long as *m–m* and as long as the appendage, the basal antennal segments are more infuscated and the body is only 7 mm. long (wing length 6·7 mm.).

LINNAEMYA CONDUCENS Villeneuve

Villeneuve 1941, 109.

Typical locality : S. Rhodesia : Vumba Mts. (type in B.M.).

This species and the following one are very closely related to *longirostris*, and the females may be indistinguishable. Villeneuve did not mention the male genitalia, which are sufficiently exerted in the type to show the superior and inferior forceps. These prove that *conducens* is not conspecific with *longirostris*.

LINNAEMYA ANGUSTIFORCEPS, sp. n., ♂

Coloration and pattern as in *L. longirostris* Macq., with which the structural characters, pollinosity and colour of hairs on the different part of the body

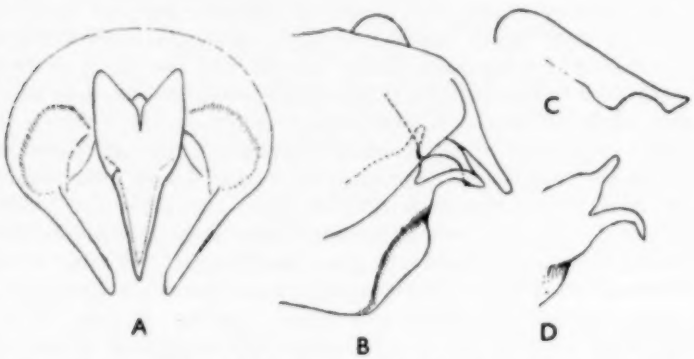

Fig. 5.—*Linnaemya angustiforceps* sp. n. A, superior and inferior forceps, with hairs omitted, posterior view ; B, male genitalia, left side ; C, superior forceps, left side ; D, distal portion of penis, left side.

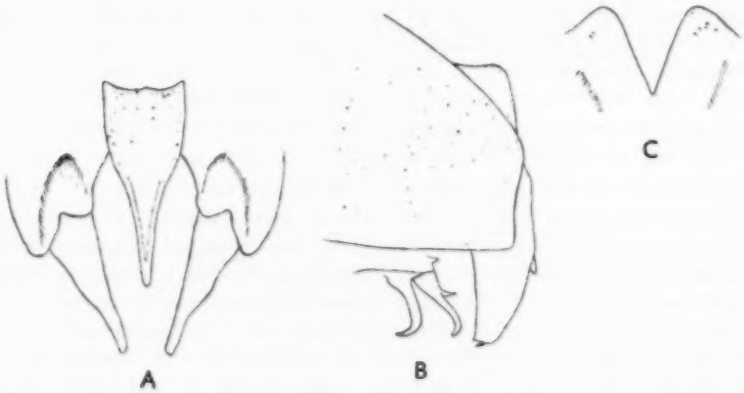

Fig. 6.—*Linnaemya longirostris* Macq. A, superior and inferior forceps, with hairs omitted, posterior view ; B, male genitalia, left side ; C, median cleft in posterior margin of fourth visible ventrite, ventral view.

also tally, but the male genitalia very different as stated in the key and shown in Figs. 5 and 6. I have not found any characters for separating this species

from *longirostris* visible without dissection or likely to apply to the female.

KENYA : E. side of edge of Forest in the Aberdare Mts., 7300 ft., 24. ii. 11 (*T. J. Anderson*), ♂ type ; W. slopes of Mt. Kenya on Meru-Nyeri Road, 6000–8500 ft., 16–23. ii. 11 (*S. A. Neave*), 1 ♂ paratype.

As these specimens differ from *conducens* Villen. in at least three characters, they will have to be regarded as a separate species. Nevertheless, it appears quite possible that the type of *conducens* is an intersex, and that normal males have no orbital setae like *angustiforceps*. Only the length of the third antennal segment and the median vitta of the abdomen would then distinguish the present form, and these would hardly be very satisfactory characters.

LINNAEMYA LONGIROSTRIS Macquart

Tachinomima longirostris Bezzi 1908, 51 ; Speiser 1910, 134 ; Villeneuve 1913, 26 ; 1914, 438 ; Curran 1934, 22.

Tachinomima expetens Brauer & Bergenstamm 1891, 383 (=79), 1893, 144 (=56), 222 (=134), 224 (=136).

Dejeania striata Jaennicke 1867, 68 ; Brauer & Bergenstamm 1893, 144, 224.

Micropalpus longirostris Macq. 1843, 203 (=46) ; Jaennicke 1867, 389.

Micropalpus salmacinus Speiser 1910, 135, 136 (I have seen the type in Stockholm) ; Villeneuve 1914, 438.

Typical localities : as of *longirostris* Macq. and *expetens* : CAPE : of *striata* and *longirostris* Jaen. : ABYSSINIA : Simen ; of *salmacina* : Kilimanjaro ; of *sulphurea* : S. ABYSSINIA. Recorded from : TANGANYIKA : Kilimanjaro. KENYA. NATAL : Durban. TRANSVAAL. NYASALAND : Mt. Mlanje. ERITRAEA : Adi Caiè (Bezzi). CAPE PROVINCE : East London ; Stollenbosch. NATAL : Umbilo ; Port Shepstone. TRANSVAAL : Citrus. KENYA : Ngare Narok. S. RHODESIA : Salisbury. UGANDA : Kampala ; Nyakasura (all by Curran). In B.M. from : CAPE PROVINCE : Viljoeus Pass, 40 mls. from Cape Town, 7. xii. 30 (*H. W. Simmonds*), 1 ♀ ; Grahamstown, ix. 94 (Distant Coll.), 1 ♀ ; Ceres, ii. 32 (*J. Ogilvie*), 1 ♀ ; Matatiele, 15. xi. 54 (*C. H. Andrewes*), 1 ♀ ; George, 2. viii. 54 (*C. H. Andrewes*), 1 ♀ ; Howick 1901. NATAL : Weenen, iii–iv. 25 (*H. P. Thomasset*), 1 ♀ ; Umbilo, Durban, 11. viii. 13 (*H. Bevis*), 2 ♀ ; Howick (*J. P. Cregoe*), 1 ♂ ; Willow Grange, Mooi River, 11. viii. 13 (*R. C. Wroughton*), 1 ♂ ; Pietermaritzburg, 17 and 18. xi. 54 (*C. H. Andrewes*), 2 ♂. N. RHODESIA : Kipushi, Congo border, 24. x. 27 (*H. S. Evans*), 1 ♂. N.E. RHODESIA : Serenje (*F. H. Wilson*), 1 ♂. UGANDA : 1905 (*F. B. Pearce*), 1 ♀ ; Mt. Elgon, 6 and 7. iii. 34, 9000 ft. (*H. B. Johnston*), 2 ♀, 10. iii. 34, 11 000 ft., 1 ♀ ; Bukalasa i. 30, ex *Heliothis obsoleta* (*A. B. Killick*), 1 ♂, 1 ♀ ; Nkokonjero, 23–27. xi. 26 (*G. L. R. Hancock*), 1 ♀. KENYA : (*T. J. Anderson*), 1 ♀ ; (*R. J. Stordy*), 1 ♀ ; Narok, Masai Reserve, 2, 3, 17, 18. ii, 13. iii. 14 (*A. O. Luckman*), 5 ♂, 1 ♀ ; 13–17. iii. 14, 5000 ft., 1 ♂ ; Kilolo River, N. of Mt. Kenya, 7700 ft., 6. ii. 11 (*T. J. Anderson*), 2 ♀ ; E. side of edge of forest of the Aberdare Mts. 7300 ft., 24. ii. 11 (*T. J. Anderson*), 13 mls. N. of M'bagoris Village towards Meru, 13. ii. 11 (*T. J. Anderson*), 1 ♂ ; Masai Reserve, 2–25. ii. 14 (*A. O. Luckman*), 1 ♂ ; Kabete (*T. J. Anderson*), 1 ♂, 26. x. 18, 1 ♂, 1 ♀, 30. x. 18, 1 ♂, 28. x. 18, 1 ♂, 5. ii. 18, 20–24 viii. 14 from *Chloridea obsoleta*, 2 ♂ ; Eldama Ravine, 7500 ft., 3. ii. 11, caught near stream (*R. B. Woosnam*), 1 ♀ ; El donyo eb Viru, v. vii (*C. S. Betton*), 1 ♂ ; Kinangop, 7000–8000 ft.,

2. v. 12 (*Wm. J. Radford*), 1 ♀ ; Nakuru, i. 13 (*van Someren*), 1 ♂ ; Mt. Elgon, Heath Zone, 10,500–11,000 ft., ii. 35 (*F. W. Edwards*), 2 ♀ ; Jubaland Prov. (*R. J. Stordy*), 1 ♀. ABYSSINIA : Jem-Jem Forest, nearly 9000 ft., 24. ix. 26 (*H. Scott*), 1 ♀, (*R. Stordy*), 1 ♀, xi. 11, 3 ♀ ; Galana, xi. 11 (*R. J. Stordy*), 1 ♀ ; Higo Samula, 30. x. 11 (*R. J. Stordy*), 3 ♀ ; Adis Abeba, i. 25 (*G. Bolam*), 1 ♂ ; Wagira, Gara Mulata (*G. Kristensen*), 1 ♀. Seen from : SUDAN : Nagishot, 31. iii. 46 (*D. J. Lewis*), 1 ♂. NATAL : Port Shepstone, vii. 39 (*MacGiles*), 1 ♀. BELGIAN CONGO : Nioka, Ituri, 20. i. 34 (*J. V. Leroy*), 1 ♂. CAPE PROVINCE : K.W. Town, x. 50, ex L. *Cullia terrensis* Feld. (*J. S. Taylor*). S. RHODESIA : Avondale, Salisbury Dist. ii. 42 (*A. Cuthbertson*), 1 ♀.

In the Jem-Jem specimen the second abdominal segment has 3 median discals and 6 median marginals with sides connected together.

LINNAEMYA SULPHUREA Villeneuve

Tachinomima sulphurea Villeneuve 1935, *Rev. Zool. Bot. Afr.* **27** : 140 ♀.

Typical locality : S. ABYSSINIA. Type in B.M. (Abua, 8. xi. 11, S. Abyssinia, *R. J. Stordy*). The male is unknown, and it is possible that *sulphurea* is only a variation of *longirostris*, of which somewhat similar but larger Abyssinian specimens are at hand. These do not, however, have the narrower parafacialia and shorter second segment of the arista.

LINNAEMYA NIGRITARSIS, sp. n., ♂

Pale ferruginous, upper third of parafrontalia infuscated, upper half of occiput, metanotum and disc of mesonotum, laterally up to the *ia* and behind up to the *prsc* and last *dc*, fuscous-black, mentum and palpi piceous-brown, the latter half as long again as wide, propleural depression and most of remainder of pleura fuscous ; abdomen with a rather broad complete fuscous-

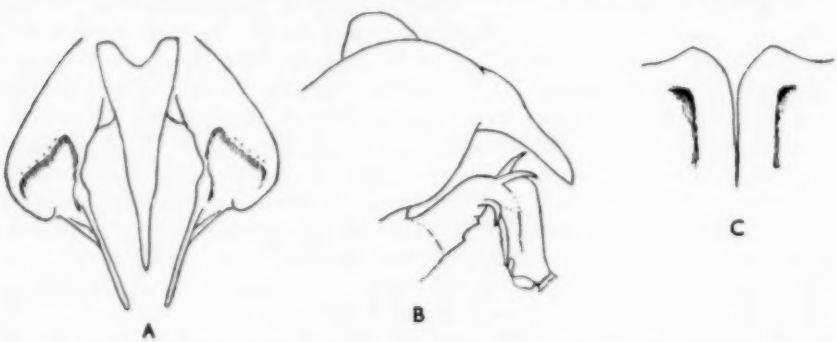

Fig. 7.—*Linnaemya nigritarsis* sp. n. A, superior and inferior forceps, with hairs omitted, posterior view ; B, male genitalia, left side ; C, median cleft in posterior margin of fourth visible ventrite, ventral view.

black median vitta, which occupies about a quarter of the width of the segments, and which is moderately narrowed at base of third and fourth segments; fore coxa with a fuscous stripe along *av* surface, tarsi black ; second and third antennal segments, especially on outer surface, dull orange-red, largely

infuscated.—*Head* densely dusted pale greyish-gold, on occiput greyish-white; frons at vertex one-quarter head-width, moderately dilated with somewhat concave sides to lunula where it is more than two-fifths (0·42) head-width, interfrontalia rufous, about as wide at middle as a parafrontale, the latter with 9–10 inclinate setae, the hindmost of which is stronger, whereas anteriorly 4–5 descend in a dense row on the parafacialia almost to level of apex of second antennal segment, parafrontalia setulose to inner and especially outer side of the setae, as is the upper third to half of the parafacialia, occiput with yellowish-white hair except for a row of black hairs (doubled below) behind the postocular row, jowls with rather sparse but strong setulae, 1–2 of which are setose, ocellars rather strong, inner verticals very strong, outer verticals weak ; parafacialia almost one-third, jowls fully two-thirds, as wide as eye at its smallest diameter. Third antennal segment only slightly broadened from base to apex, where it is obliquely rounded-truncate, the dorsal (anterior) angle being obtusely rounded off, and the ventral angle rather broadly rounded, dorsal edge gently rounded ; arista fuscous, slender and rather long, evenly tapering, second segment thrice as long as wide.—*Thorax* with moderately dense pale-gold and, on the four dark vittae, fuscous-brown dust, these vittae not very sharply defined and moderately broad, apparently 3+3 *acr* and *dc* and 1+3 *ia* (specimen greasy and many bristles missing), *pra* somewhat weaker but hardly shorter than second *npl* ; scutellum wholly pale ferruginous, broadly rounded, subapical marginals slightly more widely separated from each other than from the lateral, and somewhat less than from the basal marginal, the first two very strong, the latter rather thin, apicals small and apparently decussate, 2–3 pairs of preapicals, discals rather thin and irregular.—*Abdomen* very short-ovate, almost circular in outline, hypopygium concolorous, superior forceps and fourth ventrite fuscous-black ; some whitish dust visible on a narrow band at base of second to fourth segments ; second segment with strong median discals and median and lateral marginals, third with strong median discals and a row of strong marginals, the median discals closer to base than to apex, and all pairs of median setae rather broadly separated ; chaetotaxy of the dissected fourth segment unknown.—*Wings* greyish subhyaline with a brownish tinge, which is very conspicuous basally ; veins rufous-brown ; base of r_{4+5} with 2–4 setulae on node ; r_1 conspicuously exceeding level of *r–m*, which lies beyond middle of discal cell ; bend of *m* forming a sharply defined slightly obtuse angle, appendage almost twice as long as preceding section of *m*, apical cross-vein outwardly concave behind, almost straight towards margin, *m–m* moderately oblique and sinuous. Calyptrae brown, subopaque, with pale brownish border and whitish fringe. Halteres dull reddish-yellow.—*Legs*. (Front legs of type missing except for coxae and trochanters.) Mid femur with 2 strong *a* setae at middle, 2 strong *av* and 2–5 *pv* setae on basal two-fifths and 2–3 *v* setae on basal sixth, the basal half in addition with numerous long setulose *pv* hairs, mid tibia with 4 *ad* setae, the third of which is much the strongest and lies at middle, with a strong *av* well beyond middle, a small *pd* at apical fourth, 2 *p* setae near basal third and apical third and a strong *pv* near three-fifths of length ; hind femur with an *av* row of 6–7 setae, 5–6 *a* setae on more than basal half and

4–5 long and strong *pv* setae on basal half, hind tibia with 1–2 *av*, 3–4 *ad* and 3–4 *pd* setae, of which the second or second and fourth are rather strong.

Length 9·2 mm., of wings 8·2 mm.

KENYA : W. slopes of Mt. Kenya, on Meru–Nyeri Road, 6000–8500 ft., 16–23. ii. 1911 (*S. A. Neave*), ♂ type.

The specimen was collected together with the paratype of *angustiforceps*. Although it is closely related to it, the distinguishing characters are so numerous and important, that it cannot be regarded as a form of that species. It is, however, not quite impossible that this is a hybrid between *angustiforceps* and some other species.

LINNAEMYA MACULIPES Villeneuve

Tachinomima maculipes Villen. 1920, 154.
n. syn. *Tachinomima braunsi* Villen. 1930, 352.

Typical locality (of *maculipes* and *braunsi*) : CAPE PROVINCE : Willowmore. The species has been incorporated in the key with the type of *braunsi* at hand. Though I have not seen the type of *maculipes* it is obvious from the description that this is the same species, especially since Villeneuve was doubtful whether it represented a good species or only a form of *laxiceps*.

LINNAEMYA LAXICEPS Villeneuve

Tachinomima laxiceps Villeneuve 1916, 472.
n. syn. *Micropalpus analis* Macq. 1855, 98 nec. *Linnaemyia analis* R.-D. 1830, 5 = *Micropalpus analis* R.-D. Macq. 1835, 82 ; Brauer 1898, 495.
Linnaemyia laxiceps Villeneuve, Curran 1934, 8.

Typical localities : CAPE PROVINCE : Cape ; Cape Town (type of *laxiceps* seen, in S. Afr. Mus.). NATAL : of *analis* : GABON. Recorded from : TRANSVAAL : Pretoria. NATAL : Nkanhla Forest, Zululand. In B.M. from : CAPE PROVINCE : Cape Town to Cape Point, Cape Peninsula, 6–13. xi. 30 (*H. W. Simmonds*), 1 ♂, 2 ♀ ; Matatiesa, 8, 10 and 13. xi. 54 (*C. H. Andrewes*), 2 ♂, 2 ♀ ; Ongeluks Nek, 14, 15, 19. xi. 54 (*C. H. Andrewes*), 2 ♂, 1 ♀. NATAL : Estcourt, ix–x. 96 (*G. A. K. Marshall*), 1 ♂ ; Ulundi 5000–6500 ft., ix. 96 (*G. A. K. Marshall*), 1 ♀ ; Howick, (*J. P. Cregoe*), 1 ♂, 1 ♀ ; National Park, iii. 32 (*J. Ogilvie*), 1 ♀. TRANSVAAL : Piet Retief, (*R. Crawshay*), 1 ♂.

Through the courtesy of Mr J. E. Collin I have been able to study the type of *analis* from the Bigot collection. It is a female labelled " *Micropalp. analis* ♀ Macq.", " *M. analis* ♀ Macq., Gabon ", and " Brauer Wien CVII. (No. 24) ". It perfectly fits the description of *laxiceps* Villen. As *Micropalpus analis* Macq. 1855 is a homonym of *M. analis* R.-D. 1830, Villeneuve's name is valid. All the localities are South African except that of the type of *analis*, and there can be little doubt that Gabon is an erroneous locality.

LINNAEMYA CAFFRA Villeneuve

Micropalpus caffer Villeneuve 1916, 471.
n. syn. *Linnaemyia cuthbertsoni* Curran 1934, 8, 21.

Type localities : NATAL : Durban. NYASALAND : Mt. Mlanje. TANGANYIKA ; of *cuthbertsoni* : S. RHODESIA : Chirinda Forest ; Chirinda. CAPE PROVINCE : Barberton. In B.M. from : NYASALAND : Zomba (*H. S. Stannus*),

1 ♀. UGANDA : Namwamba Valley, 6500 ft. (*F.W.E.*), 1 ♀. KENYA : Mogorr River, 1918 (*A. O. Luckman*), 1 ♀. ABYSSINIA : Gatelo Amaiyu, 4. xi. 11 (*R. J. Stordy*), 1 ♀. Seen from : BELGIAN CONGO : Astrida, Ruanda, iii. 40 (*A. Lestrade*), 1 ♂.

The Mt. Mlanje paratype of *caffra* and the type of *cuthbertsoni* belong to the Commonwealth Institute of Entomology and are ultimately to be presented to the British Museum (Natural History) but it has not so far been possible to obtain their return to London. The Abyssinian has the hairs of the mesopleura all black and the abdomen with a broad black median vitta whilst in other specimens the mesopleural hairs are largely pale and the abdomen unicolorous dark rusty-reddish. In the absence of males it cannot be decided whether the Abyssinian specimen belongs to a separate species

LINNAEMYA ACULEATA Curran

Tachinomima aculeatus Villeneuve of Curran 1934, 7, 14.
Micropalpus aculeatus Villeneuve 1936, 7.

Typical locality : N. TANGANYIKA. In B.M. from UGANDA : Mpanga Forest, Toro, 4800 ft., 13–23. xi. 11 (*S. A. Neave*), 1 ♀. ABYSSINIA : Jem-Jem Forest, 9000 ft., 24. ix. 26, from flowers resembling *Eupatorium* (*H. Scott*), 2 ♂. SUDAN : Nagichot, 31. iii. 46 (*D. J. Lewis*), 1 ♀. NYASALAND : Mt. Mlanje, 6500 fr., 11. xi. 13 (*S. A. Neave*), 1 ♀. Seen from UGANDA : W. Ruwenzori, 8–9000 ft., vii. 45 (*G. R. C. van Someren*), 1 ♀. KENYA : Nanyuki (S :), v. 48 (*can Someren*), 2 ♀.

The Mt. Mlanje specimen has the ventral setae of the abdomen hardly stronger than *multisetosa*, but the other characters are as in the present species. The Nagichot specimen is very dark with rather conspicuous transverse bands of whitish dust on third and fourth abdominal segments, as in *multisetosa* var. *fasciata* Villen. and in *Dejeania hecate* var. *abyssinica* Villen., and a specimen of the latter form with almost identical coloration and identical data was in the same box as this specimen. A collection from Nanyuki (v. 48) contained two specimens of the present species and an identical-looking *Dejeania crocea hecate*. Speiser (1910, L VII) commented on a kind of mimetic connection between the present genus and *Dejeania*, but apart from these two cases I have no striking observations of a similar kind to report.

L. aculeata is ascribed by Curran to Villeneuve, but Curran states at the same time that he has not seen a description, and I too have not been able to trace one. Villeneuve (1936, 7) mentions the species without making it clear whether and where he had described it. The species must therefore be attributed to Curran, and his description (proboscis one-fourth longer than the head-height ; mesopleura black-haired ; second abdominal segment with two rows of spines in the middle, etc.) must therefore be considered decisive. I have seen 2 ♀ collected by Grauer in N.W. Tanganyika and belonging to the Vienna Museum. One of these was labelled by Villeneuve "*Micropalpus aculeatus* Villen. Typ.".

LINNAEMYA MULTISETOSA Villeneuve

Tachinomima multisetosa Villeneuve 1936, 7.

Typical locality : UGANDA : Ft. Portal, Ruwenzori (type in B.M.). In

B.M. from : UGANDA : Nyamgasani Valley, Ruwenzori, 10500–11500 ft. (*D. R. Buxton*), 1 ♀. NYASALAND : Plateau on Mlanje Mt., 6000–7000 ft., 1–2. v. 10 (*S. A. Neave*), 1 ♂. Seen from : Bwamba Valley, vii. 45 (*G. R. C. van Someren*), 1 ♂.

LINNAEMYA MULTISETOSA var. *FASCIATA* Villeneuve

Tachinomima multisetosa var. *fasciata* Villeneuve 1936, 8.

Typical locality : UGANDA : Ft. Portal, Ruwenzori. In B.M. from : KENYA : W. of Mt. Kenya, 6500–7250 ft., 19–20. ii. 11 (*T. J. Anderson*), 1 ♀ ; E. edge of Forest of the Aberdare Mts., 7300 ft., 24. ii. 11 (*T. J. Anderson*), 1 ♀ ; Mt. Kinangop, Aberdares, 9000 ft. (*J. Ford*), 1 ♀.

In the Kinangop specimen the abdomen is rather dark in ground-colour, so that the white bands are very striking as in *Dejeania hecate* var. *abyssinica* Villen. and in the above-mentioned dark specimen of *L. aculeata*.

LINNAEMYA BEQUAERTI Curran

Curran 1934, 7, 18.

Typical localities : UGANDA : Behungi. BELGIAN CONGO : Tshibinda (paratype in B.M.). In B.M. from UGANDA : N. Ruwenzori, 6000–8500 ft., 1–2 xi. 11 (*S. A. Neave*), 2 ♀ ; Karangora 7000 ft., 6. iii. 34 (*J. F. Shillito*), 1 ♀.

PLAGIOCOMA Villeneuve 1916

Plagiocoma crassiseta Villen. 1916, 474 ; Townsend 1939, **8**, 346.

Only known from Port Elizabeth, CAPE PROVINCE (*J. Bequaert*). The genus has apparently not been found again.

MARSHALLOMYIA, gen. n.

Head (♀) in anterior view about two-thirds as high as broad including eyes, in profile with frons weakly declivous and lower margin of jowls almost horizontal, occiput moderately swollen behind ; mouth margin conspicuously produced and projecting between vibrissae ; parafacialia with a single row of setulae traversing their entire length, this row reaching to level of vibrissae. Proboscis slender, much longer than height of head ; palpi vestigial. Antennae with basal segment markedly projecting dorsad, second segment relatively long, not much shorter than third segment, which is less than twice as long as broad ; arista with first segment slightly longer than second, which itself is elongate, both together not much shorter than third, weakly elbowed. Frontal setae descending to level of arista, the lowest four stronger than the remainder, all inclinate and slightly reclinate, four reclinate under orbitals on each side, and five proclinate outer orbitals of unequal size, a praevertical on each side bent outward, a pair of outer and a pair of inner verticals, ocellar setae diverging and proclinate, a single row of black setulae on occiput occasionally 1–3 black setae behind this row ; anterior extremity of occipital dilation narrowly rounded and with a few strong setae ; vibrissae slightly above level of mouth-margin, directed forward and inward, not upcurved. *Thorax* with

well-developed setae, among them 1+3 *ia*, 2 *npl*, *pra* stronger than *npl* setae and at least equal to first *post dc*, 1 strong pteropleural, exceeding apex of lower calyptra, propleural depression and prosternum bare, scutellum with many cruciate apical setae.—*Abdomen* longer than broad, elongate-triangular, dorsal basal excavation reaching hind margin of first visible segment. *Wings* with bare veins except for several setulae on R_{4+5} in its basal node dorsally and 1–2 setae ventrally ; R_5 closed, bend of *m* abruptly rectangulate, *m* continued as a fold, *m–m* reaching *m* rather remote from bend, sixth vein not reaching hind margin ; lower calyptra broadly rounded-truncate at apex, closely following outline of scutellum, inner apical angle subangulately obtuse. Legs of normal build, procoxae and mesocoxae each with 5–6 strong setae, postero-lateral angle of post coxa with 1–2 setae, tibiae rather richly setose, hind tibia with a very strong *pv* apical seta.

Type species, *Marshallomyia natalensis*, sp. n.

This differs from *Linnaemya* in the naked eyes and in the setulae on the parafacials extending downward to the level of the vibrissae ; from *Schizolinnaea* it is separated by the presence of a strong *pv* apical seta, and by the extent of the hairs on R_{4+5} ; and from *Plagiocoma* Villen. by the closed R_5, fewer rows of parafacial setulae, and the relatively longer proboscis.

MARSHALLOMYIA NATALENSIS, sp. n., ♀

Castaneous-black, with greyish-white and yellowish-white dust and shifting dark areas ; ocellar triangle, parafrontalia, parafacialia and jowls except for a tract between vibrissae and eyes, pronotum and mesonotum, scutellum and abdominal tergites almost black ; prothoracic and mesothoracic pleurites, all legs and lower surface of abdomen, castaneous-piceous, metapleurites and post-coxae dark ferruginous ; interfrontalia dull reddish-brown ; clypeus, innermost margin of parafacialia, and a tract between vibrissae and lower margin of eye, tawny-yellow. Antennae dark-fuscous, velvety, apical margin of second segment orange yellow ; hairs on occiput dull yellow. Head densely whitish dusted, clypeus translucent, ocellar triangle large, feebly impressed distad of median ocellus ; eyes bare ; frons at vertex half as wide as total head width, feebly expanding distally, interfrontalia feebly narrowed to apex, at level of apex of ocellar triangle rather wider than a parafrontale, the latter broad with 4 slender inclinate setae bordering the interfrontalia, followed at the level of the lunule by an obliquely descending row of 4 or 5 stout inclinate setae, 3 strong reclinate inner orbital setae, with an outwardly directed praevertical seta near the basal end of this row, 2 strong proclinate outer orbital setae and a row of proclinate setulae, strong near base, weaker distally, which extends parallel to the orbital margin to below the insertion of the vibrissae ; ocellar setae diverging and weakly proclinate, a pair of inner and a pair of outer verticals, an occipital row of black setulae, more widely spaced and longer in region of ocellar triangle, so as to form a row of 4–6 post verticals, each at least as long as the ocellar setulae ; width of parafacialia at level of lunule not quite as broad as length of third antennal segment ; when head is viewed in profile apparent width of parafacialia at level of lunule distinctly greater than apparent width of jowls below eye ; vibrissae lying

slightly above level of mouth margin. Third antennal segment falling short of mouth-margin by half its own width ; second antennal segment not quite as long as width of third segment, arista thickened for three-quarters of length. *Thorax* with a pair of narrow dark paramedian vittae, diverging caudad, not interrupted at suture, outer vittae broad, obliquely truncate before suture, and continuing as a narrower streak almost to third post *dc*, dusting between vittae yellowish-grey, 3+3 *acr*, the last *prst acr* distinctly

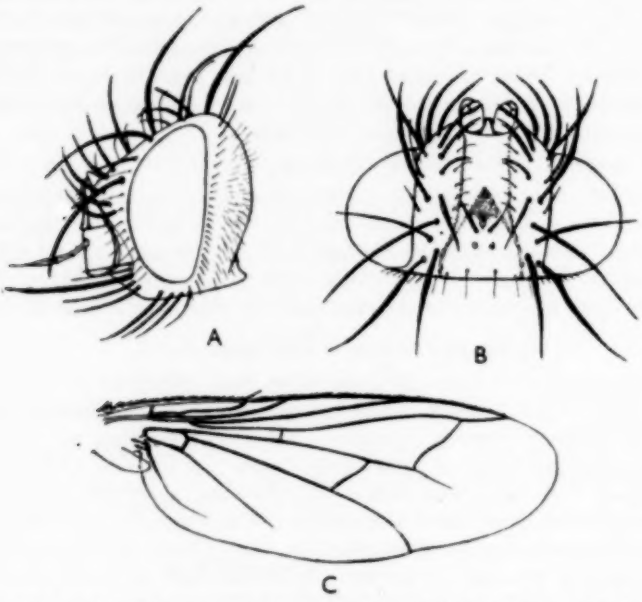

Fig. 8.—*Marshallomyia natalensis* sp. n. A, head of female, left side ; B, head of female, dorsal view ; C, wing.

anterior to suture, the last *post acr* slightly anterior to level of last *dc*, 3+3 strong *dc*, 1+3 *ia*, 1 *prst*, 1 *pra*, 2 supraalars, 3 *posta*, one, one very strong, 4–5*h*, 2 *npl*, 2 ascending *prstgm*, 1 strong ascending *substigm*, a row of 5–6 mesopleurals, 2+1 strong *stpl*, 1 very strong *ptpl* exceeding apex of lower calyptra, 3–4 hypopleurals ; scutellum with a pair of moderately strong basal setae, with a weaker pair of ventrolateral setae situated on lower margin of scutellum only a little more distally ; a pair of very strong lateral setae, which diverge and extend almost to level of apical margin of second visible abdominal tergite ; a pair of weak and slightly incurved subapical setae, and a pair of strong cruciate apicals, a submarginal row of six discal setae, but these only a trifle longer than the setulae which lie basad of them, scutellum greyish-golden dusted. *Abdomen* elongate-triangular in outline in dorsal view longer than broad (1·4 : 1), disc dusted entirely greyish-white, giving a pattern of broad shifting dark tracts ; first visible tergite with a pair of stout lateral margins, second visible tergite with a pair of very strong median marginals, and one

weak and one strong lateral marginal on each side ; third visible tergite with a pair of lateral marginals, one above the other, on each side, and a row of posterior marginals, fourth visible tergite with a discal and a marginal row. *Wings* brownish subhyaline with light brown veins, costal spine present, reaching to level of *r–m*, which lies a little beyond middle of discal cell, apical cross-vein weakly concave behind, sinuate, moderately long, only a little more oblique than *m–m*, R_5 petiolate only a little shorter than *m–m*, the latter sometimes angulately sinuous, sometimes almost straight, reaching *m* a little beyond the middle of the distance between *r–m* and bend ; epaulet black, basicosta light yellowish brown ; calyptrae creamy-white, subopaque with a concolorous fringe and a more distinctly yellow border. Halteres fuscous, lighter basally. Legs moderately stout, procoxae with 5–7 strong setae, protibia with a row of 5–6 *ad* seta and 2 *p* setae ; mesofemur with 3 *a* setae in distal half, and a short *p* seta rather near apex, a few slender *v* setae in basal half, and 3–4 *av* and *pv* setulae near apex, mesotibia with 4 strong *ad* setae, weakly *pd* setae and one *v* post femur with 3 *av* setae in basal half and a row of 3 very oblique *av* setae distally 4 *pv* setae in basal half, an irregular row of short *ad* setulae ; post tibia with 3 alternately strong and weak *ad* setae, 3 *av*, 3 *pd*, 1 apical *ad*, 1 apical *d*, 1 apical *pd*, 1 apical *av*, and 1 strong apical *pv*.

Length, 5·2–5·8 mm. ; of wings, 3·8–4·0 mm.

NATAL : Ulundi, 5000–6500 ft., Sept. 1896 (*G. A. K. Marshall*) Holotype ♀ and two ♀ paratypes, all in British Museum (Natural History).

(c) Echinomyina

Second and third abdominal segments apparently always without median discals in species from the Ethiopian region.

1 (8). Ocellars (normally) well-developed. Propleural depression hairy. Parafacialia without strong setae (i.e. as strong as the inclinate frontals) near lower end of eye, sometimes the lowest parafacial setulae rather strong but not stronger than some of the setae on the lowest part of the parafrontalia to the outer side of the inclinate setae.

2 (3). Palpi very long, slightly flattened dorso-ventrally, of practically even width, about as long as height of head or longer. Abdomen with long, spine-like setae, including a group of median marginals on first segment. Subcostal sclerite with about four wiry hairs in a transverse row. Three *stpl*. Bend of *m* with a conspicuous genuine appendage ..... *Dejeania* R.-D.

3 (2). Palpi not much exceeding or not reaching mouth-margin, much shorter than height of head.

4 (5). Mouth-margin not very conspicuous in profile, only slightly produced, almost in line with clypeus. Third antennal joint elongate, almost parallel-sided, slightly shorter to much longer than second. ♂ : the anterior or both proclinate setae present ..... *Chromatophania* B. B.

5 (4). Mouth-margin strongly projecting in profile, the clypeus strongly raised to mouth-margin. Third antennal joint roundish, shorter than second.

6 (7). Palpi and proboscis of normal size, both about reaching or slightly exceeding mouth-margin in front..... *Echinomya* Latr.

7 (6). Palpi small, hardly a third the length of mouth-opening; proboscis elongate and slender, somewhat longer than head. ♂: without proclinate parafrontal setae..... *Paratachina* B.B.

8 (1). Ocellars absent. Propleural depression bare. Parafacialia with one or a few strong setae near lower end of eye. ♂ (like ♀) with proclinate parafrontal setae.

9 (10). Palpi elongate, more or less exceeding mouth-margin..... *Peletieria* R.-D.

10 (9). Palpi very short and small, less than a third the length of mouth-opening ..... *Cuphocera* Macq.

DEJEANIA R.-D. 1830

n. syn. *Melanojeania* Towns. 1932, 465.

The original description was based on two species, *viz. brasiliensis* R.-D. and *capensis* R.-D. (since synonymised with *bombylans* F.). Coquillett (1910) designated the latter as the type of the genus, and this fixation makes *Dejeania* a purely Ethiopian group, similar aggregates of the New World being distinguished by compressed (instead of depressed) and usually more or less clubbed palpi, usually by the absence of ocellars and the presence of only two *stpl.* Brauer and Bergenstamm (1893, 146) characterized the genus as based on two allegedly neotropical species, but their characters are obviously in part those of the Ethiopian forms, and *Dejeania armata* Wied. was no doubt *D. bombylans* F., which Engel (1919, 135) found named "*armata* Weid." in the Winthem collection of the Vienna Museum.

A dozen Ethiopian species have been described, but three of these have been recognized as synonyms by Bezzi, Villeneuve and Engel. One species is here described as new, but the number of the remaining species is being reduced to three, and even of these *bombylans* and *hecate* have identical male genitalia and cannot be distinguished by other structural characters. This has already been recognized by Engel (1919, 138, 141), and after dissecting a series of specimens of all forms from a wide area of distribution I fully agree with him. On the other hand the large material I have seen—about 450 specimens of *hecate* and *bombylans*—does not contain any specimens intermediate between these two forms and thus justifies his procedure of retaining them as separate species.

The characters separating *pertristis* Villen. from the remaining species are those of a good species but are certainly not of generic importance. *Melanojeania* Towns. is therefore a synonym of *Dejeania.*

Villeneuve (1916, 470) described a *D. nigrapex* (overlooked by Engel) from a ♂ and ♀ of the Vienna Museum, which were labelled "*Cape of Good Hope*". The 2 *stpl*, the absence of discals from the anterior abdominal segments, the broad palpi ("thick all along the length") and the "little elongated" second aristal joint, which is "plainly shorter than in *D. bombylans*" make it quite clear that the typical pair represent a New World species with an erroneous locality. Curran (1928, 245), who has seen the type, mentions that the genitalia are "strikingly different" from those of his *goudeyi*, which confirms my view that *nigrapex* is a New World fly, as Engel has already reported the great differences in the genitalia of Ethiopian and American tachinids of the *Dejeania* group.

Key to the Ethiopian species of Dejeania

1 (2). Third antennal segment fully as long as second. Abdomen glossy, uniformly blackish-brown to purplish-black, without any pollinosity, very broad and subglobular. Parafacialia about as wide at lower end as facial ridges at widest point .... *pertristis* Villen.

2 (1). Third antennal segment markedly shorter (in its longitudinal axis) than second. Abdomen moderately shining, appearing finely shagreened as a result of a thin pollinosity, less broad and shortly-ovate. Parafacialia conspicuously wider at lower end than facial ridges at widest point.

3 (6). Abdomen translucent pale-yellow with sharply defined black, piceous or rufous-brown spots, the fourth segment conspicuously bicolorous or tricolorous to the outer side of the median spot, the posterior part rufous-brown with piceous-black anterior and median border, the anterior part pale-yellow (very seldom fourth segment entirely rufous-brown to piceous-brown, but then the third segment bicolorous in lateral part). Black occipital setulae not reaching lower extremity of eye, seldom some odd black setulae interspersed between lower end of eye and peristomal setae.

4 (5). Palpi about half as long again as height of head, apical straight part of proboscis almost twice as long as height of head. Scutellum reddish piceous to black. Wings fuscous, the base with a somewhat rusty tinge (distinct only under magnification). Rufous-brown coloration of fourth abdominal segment bordered with piceous-black in front and on median line. ♂ : inferior forceps straight, except near base, the apex boot-shaped (fig. 10) ..... *longirostris* sp. n.

5 (4). Palpi not longer than height of head, apical straight part of proboscis a quarter longer than height of head. Scutellum pale yellow. Wings conspicuously orange at base up to apex of r_1, otherwise smoky. Rufous-brown coloration of fourth abdominal segment not bordered with piceous-black (but on anterior part with a usually piceous-black median spot, which is contiguous with the rufous-brown coloration of the apical part). ♂ : Inferior forceps simply curved, sickle-shaped (fig. 9)..... *bombylans* F.

6 (3). Abdomen translucent ferruginous-brown to reddish piceous-brown (ab. *abyssinica* Villen.), without or with suffused darker median spots or transverse bands, never pale yellow, and the fourth segment never clearly bicolorous on dorsolateral surface, hair of abdomen black to largely or wholly (ab. *marshalli* Curr.) fulvous. Black occipital setulae very often reaching peristomal setae. Mesonotum more or less fuscous on disc (ssp. *hecate* Karsch and its forms), sometimes wholly ferruginous (*crocea* Big. str.). ♂ : inferior forceps simply curved, sickle-shaped ..... *crocea* Big.

DEJEANIA PERTRISTRIS Villeneuve

syn. *anthracosphaera* Speiser 1914, Deutsch. ent. Z. **1914**: 8.
n. syn. *D. certima* Curran 1927, 20 ; 1928, 243.

Typical localities : Uganda. S. Nigeria ; of *anthracosphaera* : Cameroons : Buea, Mt. Cameroon. Togo : Bismarckburg ; of *certima* : Belgian Congo : Stanleyville. Recorded from : Belgian Congo : Stanleyville (Curran). In

B.M. from : UGANDA : Entebbe, 11. viii. 11 (*C. C. Gowdey*), ♂ type, 1 ♀ paratype, 3. ix. 12, 1 ♂ ; Kampala, 18. viii. 15 (*C. C. Gowdey*) ; Kafur R. near Hoima, Kampala Road, 3500 ft., 29–31. xii. 11 (*S. A. Neave*), 1 ♂ ; N.W. shores of Victoria Nyanza, 3800–3900 ft., 12–15. ix. 11 (*S. A. Neave*), 1 ♀ ; Biafra : Itime, vi. 1919 (*M. M. Escalera*), ♂ ♀. Seen from : BELGIAN CONGO : Kamituga, Kivu, 6. ii. 39 (*A. Dufrasne*) ; Banzyville 1940 (*Princen*).

There is nothing in the original description of Curran's *certima* which would not fit *pertristis*, the latter having the mesonotum finely, yellow-pilose and the setae (and at least some of the hairs) black as described for *D. certima*.

DEJEANIA LONGIROSTRIS, sp. n., ♂ ♀

Pale waxy-yellow with fuscous-black metanotum, upper part of occiput, disc of mesonotum and a piceous-black triangular median spot at base of each abdominal segment, pleura of thorax and humeral callosities dark rufous-brown, more or less infuscated, apex of fourth abdominal segment dark rufous-brown, this coloration gradually passing into a piceous-black spot, which begins in a median basal triangle and is narrowly extended to middle, where the spot is dilated into a transverse band that reaches lateral surface, lateral surface of third segment with a piceous-black spot at hind margin, lateral surface of second segment with the vestige of a similar spot, basal excavation of first segment also piceous-black, the median basal spots slightly carried over on to hind margin of preceding segment ; legs rufous-brown with pale-ferruginous tibiae and tarsi, palpi pale-testaceous ; mentum rufous-brown ; antennae testaceous-brown, third segment infuscated, its base narrowly orange-red.—*Head* densely dusted pale-gold, hairs of parafrontalia and upper part of parafacialia black, those of occiput yellowish-white, jowls and lower part of parafacialia with some yellowish hairs, setulae of lower half of postocular row also yellowish ; lower part of jowls with 1–4 black setae, which are very strong to strong, peristomal setae otherwise hardly developed ; frons at vertex three-tenths head-width (0·29–0·32), moderately dilated with somewhat concave sides to lunula where it is just over half as wide (0·51–0·54) as head ; interfrontalia testaceous-yellow, evenly dilated forward, half as wide again at middle as a parafrontale, the latter with 5 inclinate setae and at the hind end of the row a very strong seta which is curved backward and outward, and below the front and with an irregular group of 2–5 descending frontals on upper part of parafacialia, outer part of parafrontalia with numerous black hairs and small setae and, in female, with two strong proclinate setae, ocellars strong, inner verticals very strong and decussate, outer verticals moderately strong to rather weak ; parafacialia almost half as wide, jowls almost fully as wide, as eye at smallest diameter ; second and third antennal segments of almost equal length, third much wider, subcircular, somewhat axe-shaped, especially in male, the anterodorsal angle being much more broadly rounded than the anteroventral one ; arista fuscous-brown, evenly tapering, second segment in female only equally or twice, in male about four times, as long as wide, in female almost as long as apical width of second antennal segment.—*Thorax* not very densely dusted pale-grey, the four dark vittae linear and incomplete, dusted fuscous ; postalar callosities and scutellum sometimes

somewhat translucent dull red, shoulder region dull rufous-brown with the callosity usually darker ; notopleura and lateral part of mesonotum behind these also mostly translucent rufous-brown ; setae somewhat irregular, about 3+3 *acr*, 4+4 *dc* and 1+3 strong *ia*, *pra* rather strong, subequal to second *npl* ; scutellum with a single, median apical marginal, a pair of very strong subapical, lateral and subbasal marginals, and with 2–3 pairs of other more tapering marginal setae, disc with 2–3 transverse rows of strong setae, all the setae straight and spine-like, most of them hardly tapering except at the very tip.—*Abdomen* of typical *Dejeania*-shape, with broad fourth segment, which is broadly emarginate at apex, rather shiny, some thin whitish dust noticeable only in a very oblique view, hind margin of the first three segments with a dense row of long strong straight, rather blunt-tipped setae, the row of the first segment interrupted on median line, lateral surface of second and third segments with a row of a few more widely-spaced similar setae somewhat in front of the marginal row, posterior half of fourth segment with numerous irregularly-arranged similar setae, especially on the two lobes created by the

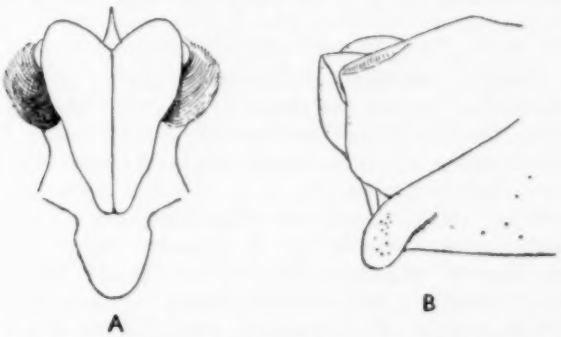

Fig. 9.—*Dejeania longirostris* sp. n. A, superior forceps and median cleft in posterior margin, of fourth visible ventrite, with hairs omitted, posteroventral view ; B, the same structures right side.

apical emargination, and with fine long black hairs, some of the hairs, especially towards the base of all segments yellowish instead of black ; ventrites in male 1(2)–3(4), in female 1(2)–4(5) broadly exposed, with a row of strong blunt setae along hind margin ; first genital segment of male piceous-brown, subcylindrical, of female rufous-brown, second genital segment of male rufous-brown, of female infuscated.—*Wings* greyish-brown, rather opaque, strongly browned at base and along front margin, especially in the costal and subcostal cells, veins dark brown, r_4+_5 with a few setulae on dorsal and ventral surfaces of basal node only, *sc* virtually reaching r_1 much exceeding level of *r–m*, which lies almost at middle of discal cell, *m–m* slightly sinuous and moderately oblique, bend of *m* forming a very pronounced angle, which is right or very slightly obtuse, with the apex even slightly acute, posterior cross-vein outwardly concave behind, almost straight towards margin, appendage of bend longer than preceding section of *m*. Calyptrae brownish-white, subopaque, with concolorous border and pale-gold fringe. Halteres dull fuscous-brown.—

Legs : fore tibia with 2 strong *p* and 2–3 small *pd* setae and with an *ad* row of rather strong but short, somewhat unequal setae ; mid femur at middle with an oblique row of 4–5 strong *av* to *ad* setae with some adjacent small setae on *d* surface, mid tibia with a strong (and sometimes an adjacent small) *av* seta, with 2 strong and a few small *pd* and with a row of *ad* setae, 2–4 of which are long and strong ; hind femur with a long and strong black *av*, and a long and fine, sometimes pale, *pv* seta at middle and a row of about 3–5 *av* and *pv* setulae at apex, many of the hairs and setulae on basal half of *v* and *pv* surfaces pale, hind tibia with 1–2 *av*, 1–4 mostly weak *pd* and a row of *ad* setae, of which 2–3 are long and strong, the others more or less short.

Length 11·3–12 mm., of wings 10·3–11·8 mm.

ABYSSINIA : Jem-Jem Forest, nearly 9000 ft., 24. ix. 26, from flowers resembling *Eupatorium* (*H. Scott*), ♂ type, 1 ♂, 4 ♀ paratypes.

DEJEANIA BOMBYLANS F.

Synonymy and bibliography see Bezzi 1908, 51 ; Engel 1919, 139 ; Townsend 1939, 73 ; Speiser 1914, 8.

n. syn. *Dejeania goudeyi* Curran, 1928, 243, 244 ♂ (not ♀).

Typical localities of *bombylans* and *capensis* : CAPE ; of *variabilis* Jaen. : ABYSSINIA : Simen (=Semien) ; of *goudeyi* : UGANDA : Masaka (" Majaba " errore typogr.). Recorded from CAPE PROVINCE, TRANSVAAL, MOZAMBIQUE, TANGANYIKA, ABYSSINIA, ERITREA, SUDAN, FRENCH CONGO, BELGIAN CONGO, CAMEROONS, and SIERRA LEONE.

In B.M. from : CAPE PROVINCE : Uitenhage, 30. x. 31 (*J. Ogilvie*) ; Umtata, Transkei, 18 ii.–18 iii. 23 (*R. E. Turner*) ; King William's Town District (*Miss Barrett*) ; Somerset East, ix. 30 (*R. E. Turner*) ; Katberg, 1–10. ii. 33 (*R. E. Turner*). ORANGE FREE STATE : Ficksburg, ii–iii. 32 (*Miss A. Mackie*). NATAL : (*Mrs E. T. Turner*) ; Ulundi, x. 96 (Govt. Mus. Natal) ; Ulundi. 5000–6500 ft., ix. 96 (*G. A. K. Marshall*) ; Van Reenen, Drakensberg, xi. 26 (*R. E. Turner*) ; Ennersdale, 6. x. 16 (*J. S. Bromley*) ; Will Brook, Estcourt, 15–30. iii and 9. iv. 13 (*R. C. Wroughton*) ; National Park, iii. 32 (*J. Ogilvie*). TRANSVAAL : Louis Trichardt, iv. 32 (*Miss A. Mackie*) ; Krugers-

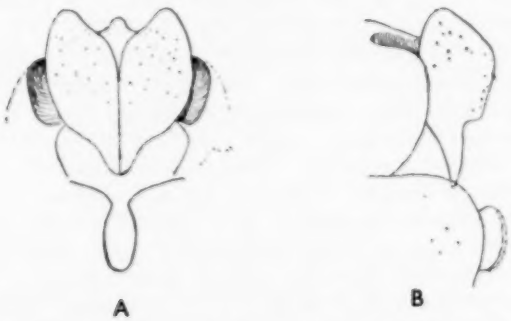

FIG. 10.—*Dejeania bombylans* F. A, superior forceps, and median cleft in posterior margin of fourth visible ventrite, postero ventral view ; B, the same structures, left side.

dorp (*H. P. Thomassett*) ; Johannesburg, 8. xi. 08 and 14. iv. 01 (*Distant Coll.*) ; nr. Johannesburg (*A. J. Cholmley*) ; Pretoria, 20. iii. 14 (*Miss J. Brincker*). S. RHODESIA : Bulawayo, 1909 (*E. C. Chubb*) ; nr. Salisbury, ii. 28 (*H. S. Leeson*) ; Mt. Chirinda, 3800 ft., 12. vi. 11 (*C. F. M. Synnerton*) ; Matope Hills, iv. 32 (*J. Ogilvie*) ; nr. Umtali, Battery Spruit, v. 32 (*Miss A. Mackie*) ; Umtali, Christmas Pass, v. 32 (*J. Ogilvie*) ; Zimbatwe, nr. Fort Victoria, ix. 31 (*J. Ogilvie*). N.W. RHODESIA : Chilanga, 4000 ft., 11. xi. 13 (*F. V. Bruce Miller*), 1. vii. 13 on bare earth below large thorn tree (*R. C. Wood*), 20. vii. 13 in room, 4030 ft., 11. vi. 11 and 7. x. 13 in house, 25. viii. 13 by stream ; Chilanga Lusaka 27. i. 53 (*K. H. Goma*) ; Kasempa District 1907 (*A. Yale Massey*). N. RHODESIA : Chitema, 25. ix. 11 (*F. W. Bruce Miller*) ; Chifogoto, 15. iv. 11 (*F. V. Bruce Miller*) ; Broken Hill, iv. 12 (*F. V. Bruce Miller*) ; 30 miles S.W. of Broken Hill, 20. ix. 12 (*F. V. Bruce Miller*). N.E. RHODESIA : Fort Jameson to Lundazi, 4000 ft., 7–14. vi. 10 (*S. A. Neave*). NYASALAND : Mlanje, 9 and 21. x. 13 (*S. A. Neave*) ; Kasitu R., Henga, W. of L. Nyasa, 12. ix. 93 (*R. Crawshay*) ; Kotakota (*J. E. S. Old*) ; Zomba (*H. S. Stannus*), 23. ix. 11 (*R. Drummond*) ; R. Kukuru, Karonga, ix. 13 (*A. G. Eldred*) ; Tukatuka, 1600 ft., 28. v. 12 (*R. Drummond*) ; Chirua R., Marimba, 12. vi (cloudy, very windy) (*J. G. Morgan*) ; Cholo (*R. C. Wood*) ; Ruo, 11. i. 17 (*R. C. Wood*). TANGANYIKA : Kigoma District, Kitema R., 19. i. 22 (*C. H. B. Grant*) ; Lake Rukwa and Mbeya, Lake Rukwa, 8. iv. 39 (*E. Ross*). KENYA : Narok, Masai Reserve, 28. i. 14 (*A. O. Luckman*) ; Narosura, 6500 ft., 2. ii. 14 (*A. O. Luckman*) ; Kenyakago, Kisumu Prov., 7. vii. 11, 3 p.m., rains just over (*J. Pugh*). UGANDA, 1907 (*J. E. S. Old*), (*D. Bruce*), (*G. F. Scott Elliot*) ; Masaka (type of *gowdeyi*) ; Kitale, 7. v. 11 (*C. C. Gowdey*) ; Lake George, 5. vi. 11 (*C. C. Gowdey*) ; Nkokonjara, 23. xii. 10 (*C. C. Gowdey*) ; Kampala, 18. x. 26 (*H. Hargreaves*) ; Kalinzu Forest (*T. H. E. Jackson*) ; Ankola, xi. 19 (*A. Loveridge*) ; Mt. Maroto, Maroto Stream, 3700 ft., 25. i. 13 (*W. P. Lowe*) ; Top of Escarpment, N. of Fort Portal, 4700 ft., 24. xi. 11 (*S. A. Neave*) ; between Seziwa R. and Kampala, 3500–3750 ft., 27–31. viii. 11 (*S. A. Neave*) ; banks of Nile nr. Kakindu, 3400 ft., 24–25. viii. 11 (*S. A. Neave*) ; Tero Forest, S.E. Buddu, 3800 ft., 26–30. ix. 11 (*S. A. Neave*) ; between S.E. shore of L. Kioga and Kakindu, W. Busoga, 3500 ft., 22–23 viii. 11 (*S. A. Neave*) ; N. Buddu, 3800 ft., 16–18. ix. 11 (*S. A. Neave*) ; Koki Country, S.W. Buddu, 4100 ft., 1–3. x. 11 (*S. A. Neave*) ; S.E. Ankole, 4400–4800 ft., 4–8. x. 11 (*S. A. Neave*) ; Kamwezi Camp, viii. 11 (*C. H. Marshall*) ; Masinde (*R. Fyffe*) ; Kagera R., 7. i. 11 (*C. H. Marshall*) ; Mbale-Kumi Road, S. of L. Salisbury, 3700 ft., 15–17. viii. 11 (*S. A. Neave*) ; between Jinja and Busia or Mbwago's, E. Busoga, 3800–4000 ft., 28. vii–1. viii. 11 (*S. A. Neave*) ; Wasa River, 11–14. iv. 14 (*R. E. McConnell*) ; N. of L. Isolt, 3700 ft., 4–6 i. 12 (*S. A. Neave*) ; nr. Kagera, 7. xii (*C. H. Marshall*) ; Kasinga, Plain, 3000 ft. (*Y. Fraser*) ; Entebbe, 11–21. viii. 11, 7–9 and 27. v. 12, 16. x, 12, 14. xi. 12 (*C. C. Gowdey*) ; Mabira Forest, Chagwe, 3500–3800 ft., 16–25. vii. 11 (*S. A. Neave*) ; Nyakaita, 35 mls. from Mbarari, Lake Edward Road, 30. i. 12 (*H. B. Owen*) ; Muhumbu, 6 mls. Ft. Portal-Kampala Road, 26. ii. 12 (*H. B. Owen*) ; Njoro, vii. 09 (*H. S. Stannus*) ; Kangai, 1. i. 11 (*C. C. Gowdey*) ; Mbarara, 25. xii. 20 (*G. D. H. Carpenter*) ; Kagera R., 7. i. 11 (*C. H. Marshall*) ;

Nakasongola, 28. vii. 11 (*C. C. Gowdey*) ; Mityana, 30. iv. 11 (*C. C. Gowdey*). BELGIAN CONGO : Tshibinda, 21–27. viii. 31 (*J. Ogilvie*) ; Elisabethville, 11–17. ix. 31 (*Mrs L. Ogilvie*) ; Kabinda 1914 (*J. Schwetz*) ; Ruwe, Lualaba R. (c. 11° S., 26° E.), ii. 06 (*A. Yale Massey*) ; Lufira R., Katanga, 3500 ft., 9 and 10. ix. 07, 10 and 12. viii. 07 (*S. A. Neave*). ABYSSINIA : Gatelo Amaiyu, 4. xi. 11 (*R. J. Stordy*) ; Kella, 28. x. 11 (*R. J. Stordy*) ; Loddo Hawash (*R. J. Stordy*). ERITREA : Asmara, Bet Gherghis, 2400 m., 15. vi. 46 (*G. de Lotto*). SIERRA LEONE : Thirikoro, 15. vi. 12 (*J. J. Simpson*) ; Sumbai Forest Reserve, 18. iii. 27 (*R. R. Glenville*). CAPE PROVINCE : Lady Grey, 11. xii. 23 and 13. xi. 24 (*R. I. Nel*). Seen from : KENYA : Meru, vii. 43 (*V. G. L. van Someren*) ; 18. iii. 37, in house (*C. B. Symes*) ; Kitale, vii–viii. 32 (*V. G. L. van Someren*) ; Kaimosi (S), ii. 49 (*V. G. L. van Someren*) ; Bura, Teita, 5000 ft., ii. 39 ; Ruiru, 4. vii. 32 (*H. L. James*) ; Athi River, xi. 49 (*E. Pinhey*) ; Naro Moru, iv. 42 (*Meneghetti*). TANGANYIKA : Bunduki, Uluguru Mts., 6000 ft., xi. 48 (*J. G. Williams*) ; Kilakara Swamp, Morogoro (*J. G. Halcrow*).

The female, labelled and mentioned by Curran as allotype is a specimen of *hecate* Woll.

DEJEANIA CROCEA CROCEA Bigot

Bibliography Engel : 1919, 139.

Typical locality : CAPE. The types are all in coll. Collin, and through the courtesy of Mr J. E. Collin I have been able to study them. There are four specimens, all of which are females. They are marked " Brauer, Wien CVII (No. 57), *D. crocea* ♂ F. Big. A. Cap. B. Esp. " According to Villeneuve (1918, 503) there are two more specimens in the Vienna Museum, given to the latter by Verrall, no doubt from the Bigot collection, and three specimens in the South African Museum.

Dr A. J. Hesse has been kind enough to give me additional information on the specimens of *crocea* in the South African Museum and to give me with the permission of the Director the only male in that Museum in exchange. This generous attitude has enabled me to dissect the male terminalia and to find that the terminalia are indistinguishable from those of *hecate* and *bombylans*. The specimens of the South African Museum have the following localities : NATAL : Durban (*W. Haygarth*), 1 ♂, 4 ♀ (♂ now in B.M.) ; Bulwer (*W. Haygarth*), 3 ♀ ; Balgowan, xi. 15 (*Chubb*), 1 ♀ ; Karkloof, 18. v. 18 (*H. W. Bell Marley*), 1 ♀ ; Mkusi River, St. Lucia Lake, xi. 30 (*H. W. Bell Marley*), 1 ♀. All these localities are well to the South of the Limpopo–Kunene Line, and none of the *hecate* specimens has been found south of that line, so that *crocea* and *hecate* appear to be mutually exclusive subspecies, of which *crocea* has priority as far as the name of the type species is concerned.

D. crocea has the mesonotum wholly rufous without fuscous spots, whilst in *hecate* the disc of the mesonotum is always more or less fuscous. It has already been mentioned by Villeneuve (1918, 503) that intermediate forms occur, and I have found several among my material, especially among the Narok specimens. In these forms the fuscous discal spot of the mesonotum is disintegrated into several suffused spots, the disc of the mesonotum being

largely rufous. This seems to support the interpretation of *crocea hecate* as a subspecies.

DEJEANIA CROCEA HECATE Karsch

Bibliography : Engel 1919, 139. Synonymy : Speiser 1910, 133 ; Engel 1919, 139. Villeneuve 1913, 25 ; 1914, 437 ; 1918, 503. Curran 1928, 243.
syn. *D. wollastoni* Austen 1909, 93.
n. syn. *D. marshalli* Curran 1928, 243.

Typical locality : ANGOLA : Pungo Andongo ; of *wollastoni* : UGANDA : Ruwenzori. KENYA : Mombasa ; Njoro ; of *marshalli* and *gowdeyi* (allotype) : UGANDA : Ruwenzori. Recorded from : TANGANYIKA. CAMEROON. KENYA: Mau Forest. NYASALAND. In B.M. from : S. RHODESIA : Cloudlands, Vumba Mts., 6000 ft., 6–17. iv. 23 (from Rhodesia Museum) ; Chirinda Forest, 25. iii–2. v. 07 (*C. F. M. Swynnerton* ; Chirinda Forest, Gaza Land, iii. 07 (*D. Odendaal*) ; nr. Chirinda Forest, Gaza Land, iii. 07 (*G. A. K. Marshall*) ; Mt. Chirinda, Gaza Land, viii. 07 (*D. Odendaal*) ; Mt. Chirinda, at 3800 ft., 16. iv. 10 (*C. F. M. Swynnerton*). NYASALAND : Mt. Mlanje, 6500 ft., 25. ix, 9. x, 11–14 xi. 13 (*S. A. Neave*) ; Plateau on Mt. Mlanje, 1–2. v. 10 (*S. A. Neave*) ; Zomba (*H. S. Stannus*). TANGANYIKA : E. Meru, 7000–8000 ft., i. 38 (*B. Cooper*) ; New Langenburg, x. 17 (*H. S. Stannus*) ; Lushoto, Tanganyika District, 1934–1935 (*J. P. M. Ingham*). BELGIAN CONGO : Tshibinda, 21–27. viii. 31 (*Miss A. Mackie, J. Ogilvie*). KENYA : Mt. Kinangop, Aberdares, 8000 and 10000 ft., x. 34 (*F. W. Edwards*), 9000 ft. (*J. Ford*), 9000 ft., Cedar Forest, 27. x. 34 (*F. W. Edwards*) ; Chania Falls, Aberdares, 4000 ft., x. 34 (*F. W. Edwards*) ; Mt. Elgon, Heath Zone, 10500–11500 ft., ii. 35 (*F. W. Edwards*) ; Solai District, Sonje Valley, Laikipia Escarpment, 18. ix. 19 (*T. J. Anderson*) ; Trans Nzoia, 3. v. 19 (*T. J. Anderson*) ; Mombasa and Njoro (paratypes of *Wollastoni*) ; Mau Forest, 8000 ft., 1911 (*H. A. Bödeker*) (*wollastoni*, Villeneuve det.) ; N. of Mt. Kenya, 8300 ft., 18. ii. 11 (*T. J. Anderson*) ; West side of Aberdares, 8300 ft., 1–2. iii. 11 (*T. J. Anderson*) ; Nairobi 6000 ft. (*H. L. Andrewes*) ; Kijabe, Kikuyu Escarpment, 7–8000 ft., 28. xii.–5. i. 12, bamboo forest (*W. J. Radford*) ; W. slopes of Kenya, on Meru–Nyeri Road, 6000–8500 ft., 16–23. ii. 11 (*S. A. Neave*) ; Ngong, 26 and 28. x. 19 (*A. Loveridge*) ; Narok, Masai Reserve, 29. i–26. iii. 14, 5600 ft. (*A. O. Luckman*); Mau-Narok, Masai Reserve, 8000 ft., 19–21. i. 14 (*A. O. Luckman*) ; between Guaso Nyirov and Narasura, Masai Reserve, 27. ii. 14 (*A. O. Luckman*) ; Mogorr River, 1913 (*A. O. Luckman*). UGANDA : (*C. H. Marshall*) ; Mobuku Valley, Ruwenzori, 7300 ft. (*F. W. Edwards*) ; Namwamba Valley, Ruwenzori (*F. W. Edwards*) ; 10200 ft. (*F. W. Edwards*) ; Nyamgasani Valley, Ruwenzori, 8–900 and 10500–11500 ft. (*D. R. Buxton*) ; Nyakasura, Toro, 1. vi. 31 (*J. F. Shillito*) ; Ruwenzori, 10,000 ft., 15–17. v. 11 (*C. C. Gowdey*) ; Ruwenzori (type of *wollastoni* and *marshalli*, paratypes of *wollastoni*, allotype of *gowdeyi*) ; Ruwenzori, 8000 ft., 17. ii. 12 (*J. Fraser*) ; Nkokonjera, 22. xii. 10 (*C. C. Gowdey*) ; Daro or Durro Forest, Toro, 4000–4500 ft., 25–29. x. 11 (*S. A. Neave*) ; Batenko, 22. xi. 11 (*C. H. Marshall*) ; Buamba Forest, Semliki Forest, 2300–2800 ft., 3–7. xi. 11 (*S. A. Neave*) ; Ankole–Toro Border, E. of Lake George, 4500 ft., 20–21. x. 11 (*S. A. Neave*) ; Mpanga Forest, Toro, 4800 ft., 13–23. xi. 11 (*S. A. Neave*) ; 5000 ft., 26. ii. 12 (*J. Fraser*) ; Western

Ankole, 4500–5000 ft., 10–14, x. 11 (*S. A. Neave*) ; Toro Forest, S.E. Buddu, 3800 ft., 26–30. ix. 11 (*S. A. Neave*) ; Mt. Kokanjero, S.W. of Elgon, 6400 ft., 7–9. viii. 11 (*S. A. Neave*). ABYSSINIA : Wagira, Gara Mulata (*G. Kristensen*). S. SUDAN : Nagichot, Didinga Distr., 6700 ft., xii. 25–i. 26 (*G. D. H. Carpenter*). CAMEROONS : Mt. Cameroon 1st plateau, 12. i. 32 (*M. Steele*) ; Musake Mt., Cameroon, 6350 ft., 13. i. 32, in clearing (*M. Steele*). Seen from : UGANDA : Bwamba Valley, vii. 45 (*G. R. C. van Someren*) ; W. Ruwenzori 8–9000 ft., vii. 45 (*G. R. C. van Someren*). BELGIAN CONGO : Ishwa, L. Albert, ix. 35 (*H. J. Brédo*) ; P. N. Agîte Nyiragongo, 2300 M.–1933 (*De Wulf*) (*ab. marshalli*). N.W. TANGANYIKA 1910 (*Grauer*) (ab. *marshalli*). KENYA : Ngong, 28. x. 29 ; Nanyuki(s:), v. 48 (*van Someren*) ; Mburgaye, xi. 41 ; Nakuru, i. 13 (*van Someren*) ; Naro Moru, iv. 42 (*Meneghetti*) ; Sirumin, Mt. Kenya, 12000 ft., viii. 47.

There can be no doubt that the type and paratypes of *Dejeania wollastoni* Aust. (in B.M.) are identical with *D. hecate* Karsch, as stated by Speiser (1910, LVIII), some of the typical specimens having the abdomen as light rufous as the type of *hecate*, and some of them being as dark-coloured as var. *abyssinica* Villen. The female allotype (but not the type) of *gowdeyi* Curran (in B.M.) belongs to the same typical form of *hecate*. As a rule this form has the tip of the abdomen largely black-haired, and Curran's *marshalli* (type in B.M.) was distinguished from it by the wholly pale-haired abdomen (apart of course from the setae). In the type the lateral part only of the first segment is furnished with black hair. The long series at hand shows, however, that typical *marshalli* are connected with typical *hecate* by a complete series of transitions, the fourth segment being wholly or almost wholly pale-haired especially in the Masai Reserve, where at the same time the black hairs on the second and third segments are often largely replaced by pale ones. Similar specimens are at hand from the Namwamba and Nyamgasani valleys.

DEJEANIA CROCEA ABYSSINICA Villeneuve

Villeneuve 1913, 25.

Typical locality : S. ABYSSINIA (in B.M.). In B.M. from : TANGANYIKA, E. Meru, 7000–8000 ft., i. 38 (*B. Cooper*). KENYA : Mt. Kinangop, Aberdares, 10000 ft., x. 34 (*F. W. Edwards*) ; Embu, 10. i. 14 (*G. J. O. Browne*) ; S. and E. slopes of Kenya, 6–7000 ft., 3–12. ii. 11 (*S. A. Neave*) ; Kikuyu Escarpment between Kijabe and Limoru on Uganda River, 6800–7400 ft., 6–10. iii. 11 (*S. A. Neave*). UGANDA : Mobuku Valley, Ruwenzori, 7300 ft. (*F. W. Edwards*) ; Imatong Mts., 8000 ft., ii. 36 (*D. R. Buxton*) ; 11. xii. 33, on path (*Miss M. Steele*). ABYSSINIA : Gatelo Amaiyu, 4. xi. 11 (*R. J. Stordy*) ; Jem-Jem Forest, nearly 9000 ft., 24. ix. 26, from flowers resembling *Eupatorium* (*H. Scott*). S. SUDAN : Nagichot, Didinga Distr., 6700 ft., xii. 25–i. 26 (*G. D. H. Carpenter*) ; 31. iii. 46 (*D. J. Lewis*). CAMEROONS : Musake, Mt. Cameroon, 6350 ft., 8. i 32 by beating, 12 and 13. i. 32 in clearing ; Mt. Cameroon, 1st Plateau, 12. i. 32 flying (*M. Steele*).

This is apparently the dark mountain-form identified by Speiser (Sjöstedt's Kilimandjaro–Meru Exped. 10 (5), p. 133) and others, including Engel (1919, Ent. Mitt. Berlin **8**, p. 140) as *wollastoni* Aust. The latter is, however, not a

dark form of *hecate*, and *abyssinica* Villeneuve is not a black form absent from his material as stated by Engel, but Engel's *wollastoni* Aust. The first line of Villeneuve's description " Deux sujets entièrement noirs . . ." is misleading, but further on, Villeneuve describes the abdomen as having a " fond d'un brun rougeâtre en arrière de ces bandes ", etc.

It will be noted that this form has in several places been collected together with ssp. *hecate* and that the latter has in various instances been found at even higher altitudes. Although var. *abyssinica* is apparently a form of higher altitudes (as already stated by Speiser 1910 a, b), it occurs there together with the typical form and is connected with it by every transition.

CHROMATOPHANIA Brauer & Bergenstamm 1889

Brauer and Bergenstamm (1889, 141 or 73) described this genus in their family Schineriidae, which contained *Schineria* and at the same time *Euthera*, *Clara*, *Hermya* (= *Paraphania*), *Orectocera*. Villeneuve (1933, 253) recognized that *Schineria* is not related to these genera and that it belongs to the *Echinomya* group. Apparently Mesnil (1939, 47) was the first to state that *Chromatophania* has the same relationship. The remaining genera, on the other hand, belong to the Phasiinae with the exception of *Euthera* (van Emden, 1945, 395).

The genus is confined to the Ethiopian region as far as is known.

Key to the Ethiopian species of Chromatophania

1 (2). Third antennal segment distinctly longer than second, sometimes 2–3 times its length. R_4 about 4/5 the length of discal cell, uniformly fuscous, except for base of front margin, the dark band of the wing more oblique, its front margin meeting c at or beyond apex of r_1. Mesonotum not infuscate, with only two *post acr* ; mesopleura largely pale-haired. Fourth abdominal segment with strong setae near apex only. Body rather slender ..... *picta* Wied.

2 (1). Third antennal segment slightly shorter than second. R_5 virtually as long as discal cell, with a conspicuous suffused window which occupies most of apical half, the dark band of the wing less oblique, its front margin reaching (or approaching) r_1 about halfway between levels of apex of *sc* and r_1. Mesonotum strongly infuscated on disc, with 3–4 *post acr*. Fourth abdominal segment with a discal row slightly beyond middle. Body moderately stout or stout.

3 (4). Mesonotum dull yellow or cinereous dusted ; mesopleura largely pale-haired (but with a row of black setae in front of hind margin and a group of black hairs and bristles on upper anterior part). Frons of male and female a third head-width. Body moderately stout..... *distinguenda* Villen.

4 (3). Mesonotum rather shining, only thinly dusted on disc ; mesopleura almost always black-haired. Frons of male (at vertex) less than a quarter, of female not quite a third head-width. Body stouter ..... *fenestrata* Villen.

CHROMATOPHANIA PICTA Wiedemann

Typical locality : Cape. Recorded from : Kenya. Nigeria. Belgian Congo : Mafunga, Nyangwe (Villeneuve). In B.M. from : Cape Province :

Katberg, 1–10. ii. 33 (*R. E. Turner*), 1 ♂, 2 ♀. BRITISH BECHUANALAND : Ghanzi, Mongalatsila (*J. Maurice*), 19. ii. 25 ♂, 15. x. 26 ♀. BECHUANALAND PROTECTORATE : Palapyi, 6. iii. 34 (*L. Ogilvie*), 1 ♀. NATAL : Durban (Distant Coll.), 1 ♂ ; Weenen, ii. 25 (*H. P. Thomasset*), 1 ♂. PORTUGUESE E. AFRICA : Feira, 1. viii. 11 (*F. V. Bruce-Miller*), 1 ♀. S. RHODESIA : Matabeleland (*J. S. Jameson*), 1 ♀. NYASALAND : Ludgi R., 26. v. 28 (*R. C. Wood*), 1 ♂ ; Ruo, 1. v. 16 (*R. C. Wood*), 1 ♂, 1 ♀ ; Chiromo (*R. C. Wood*), 1 ♀ ; Zomba, 3000 ft., 1. ix. 25 (*C. Smee*), 1 ♂. UGANDA : Madi, v. 27 (*G. D. H. Carpenter*), 1 ♂, 1 ♀. KENYA : Mogorr River (*A. O. Luckman*), 1 ♂ ; Moyale, 12. x. 11 (*R. J. Stordy*), 1 ♀ ; Yala R., Southern edge of Kakumëga Forrest, 4800–5300 ft., 21–28. v. 11 (*S. A. Neave*), 1 ♀ ; Diana Beach, vii. 51 (*N. L. H. Krauss*), 1 ♀. ABYSSINIA : Maraquo, 2. v. 14 (*O. Kovacs*), 1 ♀. N. Nigeria : (*J. J. Simpson*), 1 ♂, 2 ♀ ; Shonga, 1. iv. 12 (*J. W. S. Macfie*), 1 ♂ ; Azare, 1926 (*Ll. Lloyd*), 1 ♀. GOLD COAST : T. Jimla, Northern Territories, 6. i. 17 (*J. J. Simpson*), 1 ♂ ; Atabubu, Ashanti, 28. ii. 17 (*J. J. Simpson*), 1 ♀. Seen from : UGANDA : Kampala, 17. v. 28 (*H. Hargreaves*), 1 ♀ ; W. Nile Lowlands, ix. 29 (*G. D. H. Carpenter*), 1 ♀. BELGIAN CONGO : Eala, xi. 31, iii. 32 and iv. 32 (*H. J. Bréda*) ; vi. 32, xi. 32, iv. 33, iii. 35 (*A. Corbisier*) ; Bokuma, Equateur, iv–viii. 34 (*R. P. Hulstaert*) ; Luashi, Lulua, 1936 (*Freyne*). GOLD COAST : Ejura, 29. iv. 49 (*J. Bowden*).

Villeneuve (1913, 42, 43) had seen females only, but there are twelve males (and 17 ♀) among the material studied by me. Apart from the genitalia and the abdomen, which is on the average slightly more slender, the males tally perfectly with the females, and both sexes have two pairs of proclinate frontal setae. The form keyed out by Curran (1941, 10) as *distinguenda* Villen. is apparently an aberration of *picta* ; it is certainly not *distinguenda*, which on the other hand was redescribed by Curran under the name *dubia*. In ab. *dilatata* Villeneuve (1937, 4) the wing-band extends beyond the apical transverse veins to apex and hind margin, and along the latter towards the sixth vein. Its typical locality is unknown, but in the B.M. there is a specimen from TANGANYIKA : S.W. Sagalla Swamp, Chunge, 3780 ft., 25. x. 47, on reeds on swamp edge (*M. Steele*). In some of my specimens of the type form the band reaches about halfway between apical transverse vein and margin.

CHROMATOPHANIA DISTINGUENDA Villeneuve

Villeneuve 1913, 43.

n. syn. *Chromatophania dubia* Curran (1941, 10).

Typical localities : UGANDA. BELGIAN CONGO : Mafunga ; Sankisia. Of *dubia* : NYASALAND : Mt. Mlanje (in B.M.).

In B.M. from : UGANDA : Unyoro District (*C. H. Marshall*) type (♂). BELGIAN CONGO : Elisabethville, 11–17. ix. 31 (*J. Ogilvie*), 1 ♂ ; Dilolo, Katanga, 24–27. vii. 31 (*J. Ogilvie*), 1 ♀. NYASALAND : Mt. Mlanje, 29. ix. 13 (*S. A. Neave*), 2 ♀ ; River Ruo, vi. 11 (*J. M. Davey*), 1 ♂, 1 ♀ ; Zomba (*H. S. Stannus*), 2 ♀. Seen from : BELGIAN CONGO : Elisabethville, xii. 31 (*M. Bequaert*).

When describing this species Villeneuve had only males in front of him and at the same time only females of *picta* Wied. He therefore considered it quite

possible that *distinguenda* was only the male of *picta*. The above two lists show clearly that two good species are concerned and that Villeneuve was fully justified in describing his *distinguenda*.

CHROMATOPHANIA FENESTRATA Villeneuve

Villeneuve 1913, 42. Curran 1928, 399 ; 1941, 10.
? = *Echinomyia versicolor* Karsch 1879, 380 (*Fabriciella versicolor* Karsch, Speiser 1910, 134) = *Chromatophania emdeni* Mesnil 1952, *Bull. Inst. R. Hist. nat. Belg.* **28** (2) : 7.

Typical localities : UGANDA. NYASALAND. NIGERIA. SIERRA LEONE. BELGIAN CONGO : Kibombo ; Lufubu ; Kibimbi ; of *versicolor* : ANGOLA : Chinchoxo ; of *emdeni* : BELGIAN CONGO : Eala. Recorded from : BELGIAN CONGO : Stanleyville, and as *versicolor* from TANGANYIKA : Kilimanjaro ; Gonje. TOGO : Misahöhe. In B.M. from : N.W. RHODESIA : Mwinilunga, 4000 ft., 11. ix. 14 (*F. V. Bruce-Miller*), 1 ♂. NYASALAND : Mt. Mlanje (*S. A. Neave*), 5. ix. 13, 1 ♀ (with pale-haired mesopleura), ix. 13 (♂), 9. x. 13, 2 ♂, 22. x. 13, 1 ♂ ; Nyika Plateau, N. Nyasa, 13. vii. 09 (*J.B.D.*), 1 ♂ ; Cholo (*R. C. Wood*), 1 ♂. TANGANYIKA : Sanga River, 10. v. 15 (*W. A. Lamborn*), 1 ♂ ; Nguelo, Usambara, v., 1 ♂ ; Amani, xii. 21 (*A. H. Ritchie*), 1 ♂ ; Morogoro, 9. v. 22 (*A. H. Ritchie*), 1 ♂ ; Bukoba, 10. vi. 12 (*C. C. Gowdey*), 1 ♂. KENYA : Malo, Mombasa, 7000 ft. (*A. J. Cholmley*), 1 ♂ ; Mogorr River (*A. O. Luckman*), 2 ♂, 1 ♀ ; Masai Reserve, 16. v. 13 (*T. J. Anderson*), 1 ♂. UGANDA : (*C. H. Marshall*), 1 ♂ ; Ruwenzori, Namwamba Valley, 6500 ft., xii. 34–i. 35 (*F. W. Edwards*), 1 ♀ ; Entebbe (*C. C. Gowdey*), 13. ix. 12, 1 ♂, 16. x. 12, 1 ♂, 20. iii. 13, 1 ♂ ; Entebbe 1–11. ix. 11 (*S. A. Neave*), 1 ♂ ; Nakasongola, 28. vii. 11 (*C. C. Gowdey*), 1 ♂ ; Unyoro District (*C. H. Marshall*), 1 ♂ (paratype) ; Ankola, Ruampuno R. near source, forested, 29. viii. 12 (*R. E. McConnell*), 2 ♂ ; near Hoima, Unyoro, 9. xii. 11 (*S. A. Neave*), 1 ♂ ; Kabulumiro 1909 (*Sir D. Bruce*), 1 ♂ ; Kyadondo, 1903, on bank of river in long grass (*D. Bruce*), 2 ♂, 2 ♀ ; Tero Forest, 8. viii. 12 (*C. C. Gowdey*), 3 ♂ ; Fort Portal, 19. v. 11 (*C. C. Gowdey*), 1 ♂ ; Lupya, 16. vii. 11 (*C. C. Gowdey*), 1 ♂ ; Bank of Nile near Kakindu, 3400 ft., 24–25. viii. 11 (*S. A. Neave*), 1 ♀ ; Shores of L. Isolt of Wamala, 3800 ft., 7–8. 12 (*S. A. Neave*), 1 ♂ ; Kafu R. near Hoima, Kampala Road, 3500 ft., 29–31. xii. 11 (*S. A. Neave*), 1 ♀ ; between Jinja and Busia or Mbwago's, E. Busoga, 3800–4000 ft., 28. vii–1. viii. 11, some forest (*S. A. Neave*), 1 ♂ ; Budongo Forest, Unyoro, 3400 ft., 11–15. xii. 11 (*S. A. Neave*), 1 ♂ ; Banks of Nile near Kakindu, 3400 ft., 24–25. viii. 11 (*S. A. Neave*), 1 ♂ ; S. of L. George, 3200–3400 ft., 17–19. x. 11 (*S. A. Neave*), 1 ♂ ; between Seziwa R. and Kampala, 3500–3750 ft., 27–31. viii. 11 (*S. A. Neave*), 1 ♂. CAMEROONS = Abong M'Bang Dist., 1–30. iv. 36 (*F. G. Merfield*), 1 ♂. N. NIGERIA : 10. ix. 10 and 6. viii. 12 (*J. W. S. Macfie*), 2 ♂ ; Ilorin, 30. vii. 12 (*J. W. S. Macfie*), 1 ♂ ; Pools close to Agodi, 15. viii. 12 (*J. W. S. Mackfie*), 1 ♂. S. NIGERIA : Afikpo, 31. v. 10 (*J. J. Simpson*), 2 ♂. GOLD COAST 1909 (*J. H. Collier*), 1 ♂ ; Ablagi, 7. ix. 22 (*J. W. S. Macfie*), 1 ♂ ; Ankase, Ashanti, 11. i. 08, on leaf on road (*W. M. Graham*), 1 ♀. SIERRA LEONE : Pendembu, 11. viii. 12 (*J. J. Simpson*), 1 ♂ (1 type) ; Ka-yima, 24. vi. 12 (*J. J. Simpson*), 2 ♂ ; Bendu, 14. viii. 12 (*J. J. Simpson*), 1 ♂. Seen from : W. UGANDA : BWAMBA Valley, vii. 45, vii–viii. 46 (*G. R. C. van Someren*), 1 ♂ ; Bwamba

Country, 1938 (*J. O. Harper*), 1 ♂. KENYA : Jombeni Hills, v. 47 (*van Someren*), 2 ♀ ; Lake Jipe, viii. 47 (*van Someren*). SIERRA LEONE : Niala, 11. xii. 27 (*E. Hargreaves*), 1 ♂. BELGIAN CONGO : Lokardu, vi. 39 (*Maree*) ; Bassin Lukuga, iv–vii. 34 (*De Saeger*) ; Bambesa, 9, 14 and 25. v. 38 (*P. Henrard*). FRENCH CAMEROONS : Yaounde, 2300 ft., 1936 (*van Zwaluwenburg* and *McGough*). GOLD COAST : Offinsu, 21. iv. 49 (*J. Bowden*) ; Esura, A.-S., 29. x. 52 (*J. Bowden*). S. RHODESIA : Vumba Mts., 4. xii. 36 (*Drysdale*), 1 ♀.

Echinomyia versicolor Karsch may be a large melanic specimen of this species, which the description and figure fit very well, except for the " black-brown " abdomen and the " black " legs. Mesnil's *Chromatophania emdeni* is apparently referable to the same form.

ECHINOMYA Latreille 1805

This genus has been included in the key although it does almost certainly not occur in the Ethiopian region. I have seen a single specimen of *E. fera* L. without locality, marked " Nairobi Museum ". The collections sent by the Nairobi Museum have otherwise always been composed solely of Ethiopian specimens. Nevertheless, the specimen in question can hardly have been caught in East Africa.

Echinomyia versicolor Karsch (1879, 380) has never been redescribed since it was first made known, but its wing-pattern and general appearance are certainly those of *Chromatophania fenestrata* Villen. It must belong to that genus and probably even to that species, and the fact that Speiser placed it in *Fabriciella* would fit in with this assumption. According to Prof. Peus the type appears to be lost.

The characters of *Xantholarvaevora formosa* Townsend (1932, 465) would apparently lead to *Echinomya* in the key. There is, however, very little evidence of this being an Ethiopian form. According to Townsend the type in the Berlin Museum is labelled " *Echinomyia formosa* Lw." and " Coll. H. Loew : Type Chr. 71 ". The letters " Chr " are believed by Townsend to stand for Khartum. The species is not among the large Ethiopian material at hand, and it is not obvious why the letters " Chr." should mean Khartum of all things. Loew would hardly have indicated Khartum or Chartum by the letters " Chr." On the other hand the latter would be the natural abbreviation of Christoph, and obviously refers to Hugo Theodor Christoph. Upon inquiry Prof. F. Peus of the Berlin Museum has been good enough to inform me that the type has a dark metallic green label in addition to the " Chr " one, and that this green label of Loew's collection means : " Sarepta (Südrussland) Christoph leg." *Xantholarvaevora formosa* Tns. thus is a South East European form related to *Echinomyia* (*Fabriciella*) *ferox* Panz.

PARATACHINA Brauer & Bergenstamm 1893

Brauer & Bergenstamm (1893, 145(=57)) mention *ingens* B.B. 1891 (Wied. in litt.) and *costae* Jaen. The former is, according to Townsend (1939, 245), identical with *Echinomyia obliqua* Loew. No specimens of *costae* from Simen (Abyssinia) are available and Jaennicke's description applies largely to

P. obliqua, only the abdomen being somewhat differently coloured. It is quite possible that *costae* is only a geographical form of *obliqua*.

Key to the Ethiopian Species of Paratachina

1 (2). Abdomen testaceous translucent on anterior three segments and on basal quarter or so of fourth segment, the remaining part of the fourth segment piceous, median vitta vestigial, consisting only of a large median spot on the first and a small one on the second and third segments, the latter with black hair and setae ..... *obliqua* Loew.

2 (1). Abdomen testaceous translucent on anterior two segments and on most of third segment, the hind margin of third segment and the fourth segment piceous, median vitta broad, third segment with yellow hair and black setae ..... **costae* Jaen.

PARATACHINA OBLIQUA Loew

syn. *Paratachina ingens* B.B. 1891, 127; Townsend 1939, 245.

Typical locality: ORANGE FREE STATE: Bloemfontein; of *ingens*: CAPE. In B.M. from: CAPE PROVINCE: Katberg, 1–10. ii. 33 (*R. E. Turner*), 1 ♀. NATAL: Weenen, 2840 ft., vi–vii. 23 (*H. P. Thomasset*), 1 ♀; Estcourt (*G. A. K. Marshall*), ix–x. 96, 1 ♂, 3 ♀, i. 97, 1 ♀. TRANSVAAL: Piet Retief District, viii. 03 (*R. Crawshay*), 1 ♀; nr. Johannesburg (*A. J. Cholmley*), 1 ♂, 1 ♀.

PARATACHINA COSTAE Jaennicke

Echinomyia costae Jaennicke 1867, 389.

Typical locality: ABYSSINIA: Simen. Jaennicke's description does not mention the generic characters of *Paratachina*, but Brauer & Bergenstamm have studied the type and have stated that it belongs to this genus. They consider it even identical with *ingens* (1893, 220), to which it must be extremely similar according to Jaennicke's description.

PELETIERIA Robineau-Desvoidy 1830

The genus is dedicated to Amédée Le Peletier de Saint-Fargeau, and that the use of *Peleteria* by Robineau-Desvoidy is unintentional is clear from the fact that he derives from Olivier the genus name *Olivieria* and that he uses the vernaculars Oliviérie and Peletiérie for these two genera. The emendation by Bezzi (1906) is valid, and is here followed.

Key to the Ethiopian species of Peletieria

1 (2). Second and third abdominal segments each with a pair of median setae (considered as *discals* by Villeneuve) not much in front and mediad of the marginals. Parafacialia with an uninterrupted row of four or more strong setae (as strong as the inclinate frontals) from the anterior end of the frontal row to lower extremity of eyes. Antennae and legs wholly blackish (sbg. *Pleropeletieria* Villen.) ..... *lithanthrax* Wied.

2 (1). Second and third abdominal segments without discals and with only one pair of median marginals. Parafacialia with 1–2 descending frontals above and about two similarly strong setae near lower extremity of eyes.

3 (6). Palpi and mentum shorter than height of head. Second and third abdominal segments with or without a somewhat suffused rather narrow median vitta, fourth wholly ferruginous or with a small median suffused dark basal spot. Halteres pale reddish-yellow. Basal two antennal segments orange.

4 (5). Femora black. Abdomen with a continuous median vitta extending to apex of third or base of fourth segment. Thorax less densely dusted ..... *mimica* Villen.

5 (4). Femora ferruginous with infuscate longitudinal stripe on about apical third of *a* surface. Abdomen usually without, but occasionally with, a suffused infuscate median vitta on segments two and three, which is somewhat interrupted at the suture of the segments. Thorax rather densely yellowish dusted ..... *rustica* Karsch

6 (3). Palpi and mentum considerably longer than height of head. Second abdominal segment with a complete broad black median vitta, third with a well-defined median spot on posterior half, fourth black on apical half. Halteres fuscous. Antennae and femora wholly black ..... *longipalpis* sp. n.

PELETIERIA LITHANTHRAX Wiedemann

Wiedemann 1830, 283.

n. syn. *Pleropeleteria péringueyi* Villeneuve 1916, 470. Townsend 1939, VIII, 56.

Typical locality : Cape : Capetown.

The type of Wiedemann's *Tachina lithanthrax*, which I saw in the Westerman collection at Copenhagen, is labelled " *T. lithanthrax* Wied. Cape Good Hope, Sept. 1817, 283 ", whilst the description gives the locality " Von Java", " in Westermann's Sammlung ". I made the following notes about this type : " Echinomyiina. Palpi long and slender. Propleura bare. Ocellars absent. Parafrontalia with 3–4 proclinate setae. The inclinate rows strongly curved outwards and almost reaching eye-margin, thus separating the proclinate setae from four long incurved setae on parafacialia along eye-margin." This is obviously the same as Villeneuve's *P. péringueyi* from the same locality.

PELETIERIA MIMICA Villeneuve

Peleteria mimica Villeneuve 1913, 26.

Typical locality : Belgian Congo : Sankisia.

Villeneuve (1913) knew the female only of *rustica* and the male of *mimica* and considered it possible that they are actually the two sexes of *rustica*. Both species are now available in the two sexes, and there is no doubt that the two forms are distinct, although very closely related. The two specimens of *mimica* in the B.M., collected in Belgian Congo : Tenka, Katanga, 30. vii–9. viii. 31 (*J. Ogilvie*), 1 ♂, 1 ♀, measure just under 10 mm. in length (excluding the antennae and the bristles of the hind end), whilst the size of *P. rustica* ranges from 10·3–11·8 mm. as far as the material in the B.M. is concerned. Seen from : Belgian Congo : Elisabethville (piège Harris), xi. 34 (*P. Quarré*).

PELETIERIA RUSTICA Karsch

Peleteria rustica Karsch 1886, 338.

Typical locality : Angola : Pungo Andongo. Recorded from Belgian

Congo : Kitombo (Fungwe), Katanga ; Shinsenda, Katanga. In B.M. from : Sierra Leone : Kruto, 1924 (*D. B. Blacklock*), 1 ♀. Belgian Congo : Elisabethville, 11–17. ix. 31 (*J. Ogilvie*), 1 ♀. N. Rhodesia : Tshinsenda, Congo Border, 18. vi. 28 (*H. Silv. Evans*), 1 ♀. N.W. Rhodesia : Chilanga (*R. C. Wood*), 22. iv. 13, on wing, 1 ♀, 30. vi. 13, bare ground below large thorn-tree, 1 ♀ ; Lake Bangueulu, N'Chiti Island, 16. x. 46 (*M. Steele*), 1 ♂. S. Rhodesia : Matopo Hills, iv. 32 (*J. Ogilvie*), 1 ♂ ; Christmas Pass, Usutali, v. 32 (*Mrs L. Ogilvie*). Seen from : S. Rhodesia : Salisbury, Hillside, iii. 28 (*H. S. Leeson*), 1 ♀. Belgian Congo : Katanga, Elisabethville, x. and xi. 34, Harris trap (*P. Quarré*) ; Elisabethville, 2. x. 34 (*P. Quarré*) ; R. Lubambashi, Elisabethville, 19. v, 27. v, 10. vi. 20, 4. i, 28. iv. 21, 20. x. 29 (*M. Bequaert*) ; Kabura, Matanda, 1932, Harris trap (*Carlier*).

PELETIERIA LONGIPALPIS, sp. n., ♀

Piceous-black with the anterior and ventral parts of the head pale-testaceous and the abdomen testaceous, except for basal excavation of first segment, the median spots of second and third segments, apical half of fourth, and hypopygium ; median spot of second segment almost parallel-sided with broadly rounded hind margin, that of third segment short-ovate-subtriangular, pointed in front, rounded behind, dark coloration of fourth segment somewhat sinuated on each side and somewhat obtusely produced at middle ; antennae fuscous black, incisures narrowly reddish-orange, mentum piceous, palpi testaceous, legs piceous, in places translucent dull-red, posterior tibiae pale-ferruginous with the base and apex suffusedly piceous.—*Head* rather densely dusted yellowish-white, occiput more greyish-white, hair of occiput yellowish-white, but for the black postocular row, setulose hairs of parafrontalia, parafacialia and jowls black, those on jowls rather strong with very small whitish ones between them ; frons at vertex two-fifths head-width, strongly dilated with somewhat concave sides to lunula, where it is half as wide as the head, interfrontalia yellowish-testaceous, with some black hairs along sides, two-thirds as wide at middle as a parafrontale, the latter with 7–8 reclinate and more or less inclinate setae, of which 3–4 descend on upper part of parafacialia to middle level of second antennal segment, outward to these setae 2 praeverticals (bent backward and outward) and 3 strong proclinate setae, the lowest one level with base of second antennal segment, outer part of parafrontalia in addition with numerous setulae and hairs, inner and outer verticals very strong, bent backward and outward ; parafacialia slightly more, jowls slightly less, wider than eye at its smallest diameter ; parafacialia with fine erect black setulose hairs and, towards ventral extremity of eye, two strong setae. Third antennal segment plum-shaped with almost straight ventral (posterior) edge and evenly and strongly rounded dorsal anterior edge, three-quarters length of second, apex strongly rounded, arista as long as third antennal segment, second segment half as long again as first, third fully twice as long as second, somewhat spindle-shaped, thickened to beyond middle.—*Thorax* shiny black, rather thinly dusted greyish-white, more so at shoulders and on notopleura and pleura, the four undusted vittae of mesonotum, narrow,

incomplete and inconspicuous ; 3+3 *acr*, 3+4 *dc* and 1+3 strong *ia* ; *pra* rather strong, similar to second *npl*, 3 strong *stpl*, 2 strong pteropleurals.—*Abdomen* shiny, almost undusted, third segment with thin silvery dust towards middle and sides, fourth with very thin fuscous-brown dust on the black part, appearing finely shagreened ; first segment without median, but with two rather strong lateral marginals, second with a pair of strong median and two lateral marginals, third and fourth each with a row of strong marginals, fourth

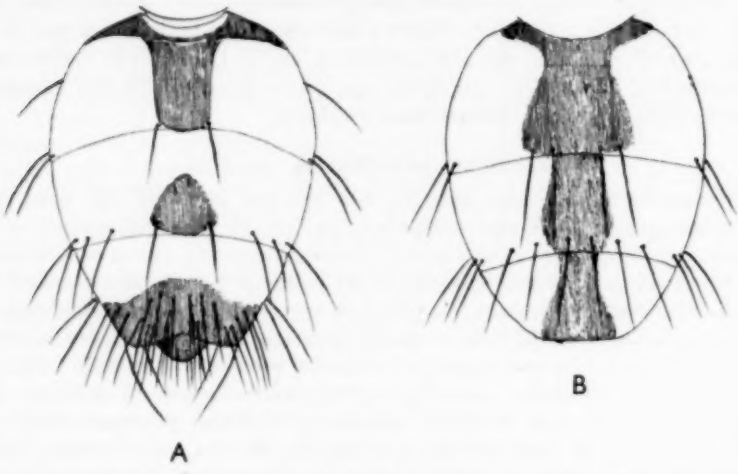

Fig. 11.—*Peletieria longipalpis* sp. n. A, abdomen of female, dorsal view ; B, *Peletieria lithanthrax* Wied., abdomen of type, dorsal view (redrawn from a sketch made by S. L. Tuxen).

with two more transverse rows of rather strong setae somewhat anterior to the marginals, ventro-lateral surface of fourth segment with numerous erect rather strong setae.—*Wings* brownish-grey, subopaque, anterior and basal cells more conspicuously browned ; node at base of r_{4+5} with 3–4 setulae, r_1 conspicuously exceeding level of *r–m*, which is somewhat oblique and lies at middle of discal cell, bend of *m* forming almost a right angle, appendage replaced by a darkish streak ; apical cross-vein rather strongly concave outwardly in posterior part, very gently convex outwardly towards margin, *m–m* evenly convex outwardly, anterior apical angle of discal cell strongly acute, posterior apical angle strongly obtuse. Calyptrae opaque whitish-grey with brownish border and pale-yellowish fringe. Halteres fuscous-black.—*Legs* rather stout ; fore tibia with 1 strong *av*, 6–8 strong *ad* and 4–7 strong *pd* setae ; mid femur with 4–5 strong *a* setae at middle, mid-tibia with 1 strong *av*, 4–6 strong *ad* and 6–7 *pd* setae ; hind femur with about 6 long *av* and 4–5 long *pv* setae ; hind tibia with 3 *av* and 6–7, mostly strong, *ad* setae, *pv* surface without outstanding setae, *pd* surface with 4 strong setae alternating with very small ones.

Length 11·7 mm., of wings 7·8 mm.

Abyssinia : Mt. Zuquala, c. 9000 ft., 21–25. x. 26 (*H. Scott*), ♀ type.

CUPHOCERA Macquart 1845

n. syn. *Acuphocera* Tns. 1926 ; Villeneuve 1931, 38.

Villeneuve synonymised *Acuphocera sumatrensis* Tns. 1926 with *Cuphocera varia* F. As the latter is not the genotype of *Cuphocera* this statement may not be deemed to synonymise the genera at the same time, and Townsend actually maintained them in 1939 (VIII, 168), differentiating them solely by the total absence (*Acuphocera*) or rudimentary condition (*Cuphocera*) of the palpi. Although it is true that—without dissection at any rate—obvious vestiges of palpi cannot be discovered in Oriental specimens of *C. varia* F., these are nevertheless so closely related to the Ethiopian and Palaearctic *C. argyrocephala* with very distinct small palpi, that Villeneuve even synonymised these species. Moreover the transition from rudimentary condition to total absence of structures occurs frequently within a genus and, rather than separating the extremely similar forms *varia* F. and *argyrocephala* Macq. in different genera, *Acuphocera* should be sunk as a synonym of *Cuphocera*.

Key to the Ethiopian species of Cuphocera

1 (2). First three abdominal segments and base of fourth black with shifting spots of whitish pollinosity, apical part of fourth segment orange. Jowls with some conspicuous black bristles and hairs, amongst which there may be some sparse whitish hairs. Hair on parafacialia and parafrontalia as a rule more or less largely black..... *ruficornis* Macq.

2 (1). Abdomen reddish at sides, blackish-grey near middle, with shifting spots of whitish pollinosity. Jowls densely white-haired, without black bristles (except of course for the peristomal setae) and with at most odd black hairs amongst them. Hair on parafacialia and anterior two-thirds of parafrontalia whitish..... *varia argyrocephala* Macq.

CUPHOCERA RUFICORNIS Macquart

Macquart 1835, Suite à Buffon **11** : 83, 9.

Typical locality : N. FRANCE : Recorded from CENTRAL and SOUTH EUROPE, TENERIFE, SOCOTRA, TANGANYIKA : Kilimanjaro (Speiser 1910, 134), and from an unspecified locality in the Ethiopian region (Villeneuve 1913, 26). The latter record refers apparently to the specimen from Marsabit Lake, mentioned below. BELGIAN CONGO : Stanleyville (Curran 1928, 399). In B.M. from : SIERRA LEONE : 10. iii. 30 (*E. P. Hicks*), 1 ♀. N. NIGERIA : Zungeru, xi. 10 (*J. J. Simpson*), 1 ♂. ANGOLA : Benguella (*F. C. Wellman*), 1 ♂, 2 ♀. ABYSSINIA : Das, 21. x. 11 (*R. J. Stordy*), 1 ♀. KENYA : Nairobi, iv. 27 (*G. H. E. Hopkins*), 1 ♂ ; Marsabit Lake, 7. x. 11 (*G. Chell*), 1 ♂ ; Naivasha, vii. 37, ix. 39 (*H. J. A. Turner*), 1 ♂, 2 ♀. TANGANYIKA : Sagalla Swamp, 1947 (*M. Steele*), 1 ♂. NYASALAND : Mt. Mlanje 19 and 24. ix. 13 (*S. A. Neave*). S. RHODESIA : Salisbury, viii. 37 (*A. Cuthbertson*), 1 ♂. NATAL : Willow Grange, Mooi River, 14. iii. 13 (*R. C. Wroughton*), 1 ♀ ; Amanzimtoli, 16. x. 31 (*Mrs W. T. Cockerell*), 1 ♂. ORANGE FREE STATE : Ficksburg, ii–iii. 32 (*Miss A. Mackie, J. Ogilvie*), 2 ?, 1 ♀. CAPE PROVINCE : Matatiela, 4. xi. 54 (*C. H. Andrewes*), 1 ♀. Seen from : SIERRA LEONE : Njala, 11. v. 32 (*E. Hargreaves*), 1 ♀. KENYA : Kabete, 30. xii. 18 (*T. J. Anderson*), 1 ♂ ;

Nairobi, vii. 30 (*V. G. L. van Someren*), 1 ♀; Stony Athi (*E.A.U. Nat. Hist. Soc. Biol. Survey*). UGANDA: Gulu, v. 41 (*T. W. Chorley*), 1 ♂. BELGIAN CONGO: Ruwenzori, 2000 m., 19. ix. 31 (*Mme. L. Lebrun*); Stanleyville, ii. 26 (*J. Ghesquière*); R. Lubumbashi, Elisabethville, 2, 9, 13. v, 20, 24. i. 21 (*M. Bequaert*); Elisabethville, x. 34, Harris trap (*P. Quarré*); Katompe, Lomami, 20. xii. 23 (*M. Bequaert*). CAPE PROVINCE: Cape Town, i–iv. 15 *J. C. Bridwell*). MADAGASCAR: Anjavibe, i. 52 (*N. L. H. Krauss*).

CUPHOCERA VARIA ARGYROCEPHALA Macquart

syn. *pyrrhogaster* Rond. 1859, 61.
syn. *rufiventris* Corti 1895, 136.
javana Wied. of Villen. 1913, 26 (pars).

Typical locality: ALGERIA: Algiers; of *pyrrhogaster*: ITALY; of *rufiventris*: ABYSSINIA: Country of Cormoso. Recorded from BELGIAN CONGO: Mufungiva, Katanga. In B.M. from S. FRANCE. ABYSSINIA (*R. J. Stordy*), 1 ♂; Das, 21. x. 13 (*R. J. Stordy*), 1 ♂. KENYA: Njoro, vi. 42, ex *Laphygma exempta* (*R. H. Le Pelley*), 1 ♂, 1 ♀. TANGANYIKA: Malagarasi, 100 mls. of Kigoma, 3730 ft., 7. xi. 47 (*M. Steele*), 1 ♀; Sagalla Swamp, 1947 (*M. Steele*), 2 ♂. N.W. RHODESIA: Chilanga (*R. C. Wood*), 3. vii. 13, "Flying round myself near water-furrow, many ♂♂", 25. vii. 13, on ground, 1 ♂, 8. viii. 13, on orange tree badly infected with black aphis, 1 ♂; Kafue, 28. viii. 13, by river (*R. C. Wood*), 1 ♀. S. RHODESIA: Shamva, viii. 34, *Cirphis loreyi* Dup. on wheat (*A. Cuthbertson*), 1 ♂. NATAL: Maritzburg, "Army Worm" emerged iii. 08 (*Bl. Fuller*), 3 ♂. Seen from: SUDAN: Khartoum, 17. ii. 47, in office (*H. W. Bedford*), 1 ♀. KENYA: (*J. I. Roberts*), 1 ♀; Lake Jipe, viii. 47 (*van Someren*), 1 ♀; Rongai, viii. 53, parasite of a Maize stalkborer (*P. T. Walker*), 1 ♀. TANGANYIKA: i. 26, ex *Laphygma exempta* (*A. H. Ritchie*). BELGIAN CONGO: Lumbumbashi, Elisabethville, 30. xii. 20 (*M. Bequaert*).

The only available specimen of *C. hova* Villen. (Madagascar) has the palpi like European and African specimens but the abdomen much less red like Oriental individuals. It is intermediate in these characters between *varia* F. and ssp. *argyrocephala* and thus emphasises the conspecificity of these geographical forms.

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NOTES ON BRITISH MAMMALS

No. 5

From

The Scientific Secretaries, Mammal Society of the British Isles.

[Accepted 9th February 1960]

RINGS FOR MARKING VERY SMALL MAMMALS

(1 Plate)

The technique of marking mice and voles in the field by means of numbered rings placed round the ankle has been used successfully in this country for over twenty years (Chitty, 1937 ; Godfrey, 1954). When the authors were planning an investigation into the ecology of the common shrew (*Sorex araneus*), it seemed sensible to take advantage of the wide experience of the Bureau of Animal Population, Oxford, with these rings and enlist their aid to develop a smaller, lighter ring for the shrews. Unlike Rudd (1955) we thought ringing feasible.

In addition to the common shrew, there were living in Exeter University Zoology Department at the same time pigmy shrews (*Sorex minutus*), water shrews (*Neomys fodiens*,) Scilly shrews (*Crocidura suaveolens cassiteridum*) and harvest mice (*Micromys minutus*). All these species have legs which are too small for the standard mouse and vole ring, so the opportunity was taken to try out small rings on them. As a result of the tests it is possible to recommend with a greater or less degree of confidence a suitable size of ring for all species examined except the Scilly shrew. The dormouse (*Muscardinus avellanarius*) would have been included in the tests also, as a captive specimen was available, but its ankle appeared to be quite thick, and probably better suited to a ring of size comparable to the standard ring.

To be effective, a leg ring must be made of material not easily defaced, and of a size which permits the animal to wear it indefinitely without ill effects (apart from humane considerations, it is obviously undesirable to have animals damaged by rings, as they could not then be expected to lead a normal life). Thus the ring must be large enough not to cause constriction or irritation which would lead to swelling of the ankle. In practice a ring is probably about the right size as long as it moves freely up and down, and also rotates easily. This alone is not an infallible criterion, however, and tests are necessary to determine what size of ring an animal can wear comfortably for long periods. Since the animal will grow while wearing it, the ideal ring is the largest size which will not slip down over the heel, where it may remain around the foot and cause irritation and damage. This is particularly important in the case of shrews, since they grow rapidly in the spring. The ring should also be as light as possible.

The tests were made quite simply by placing rings of various sizes on captive animals. The rings were always closed fully into the circular form, since it was intended to find the optimum ring size. Of course, in the field, slight

adjustments can be made for exceptionally large or small animals by leaving the ring slightly open, or flattening it a little from the circular shape. Ideally the need for this should be reduced to the minimum.

If the ring did not appear to be causing any constriction, it was left on and inspected every day. The ring was removed at the first sign of redness or swelling in its vicinity. Throughout these trials no animal suffered permanent damage, and any discomfort was quite local and temporary. The number of trials was kept small—only one or two of each ring on each species. This was partly due to the limited numbers of animals available, and partly because it was felt that two clear failures of a ring under laboratory conditions made it unlikely to be of use in the field, so that it was pointless to subject further animals to the possibility of discomfort, slight as it was. In spite of the small number of trials, it is possible to make definite recommendations of ring sizes for *Sorex araneus*, *Neomys fodiens*, and *Micromys minutus*, to recommend a probable size for *Sorex minutus*, and to make a tentative suggestion about the size of ring suitable for *Crocidura suaveolens*.

The rings used for these trials are based on the standard small mammal rings now in use at the Bureau of Animal Population, Oxford, for ringing such species as *Apodemus sylvaticus*, *Microtus agrestis* and *Clethrionomys glareolus*, which were developed by Mr D. A. Kempson during 1948 and 1949 from the type used by Chitty (1937). Since the modern rings differ in a number of ways from the earlier marks, it may be of value to summarize their characteristics here.

Rings are now made from monel metal, as this is very resistant to corrosion, is sufficiently hard to stand a great deal of gnawing without becoming so defaced that the number is unreadable, and is cheaper than the nickel of which the earlier rings were made. The mouse and vole rings are made from monel metal 0·02 in. (0·5 mm.) thick, which is scribed off in 9 mm. by 3 mm. sections. The numbers are then stamped on with a 1/16 in. size die. Strips of ten sections are cut off with a guillotine, the back edges of the strips filed smooth, and the individual sections cut off with wire snips. It is important to bend each strip accurately into an open circle, so that, when closed with the ringing pliers, it makes a perfect circle and does not compress the animal's leg. Since the metal is so hard this preparation must be done in the workshop. The strips are first bent into a U shape in a specially made former, then further bent with pliers round a $\frac{1}{8}$ in. (0·32 mm.) rod. This makes an open circle with a gap wide enough to admit the animal's ankle. These rings weigh 120 mg.

In the field the rings are applied with specially made pliers (Pl. 1, fig. 1). The rubber band holds the ring firmly in the pliers, which can therefore be made ready before the animal to be ringed is taken out of the trap. The transverse bar supports the ring in such a position that the jaws catch the edges of the ring just enough to close it without compressing it out of the circular shape. A useful dispenser which carries a stock of fifty rings is shown in Pl. 1, fig. 3.

The small size rings are made in essentially the same way. The monel metal is however only half the thickness (0·01 in. = 0·25 mm.), and the greater flexibility of this thinner sheet enables the strips to be bent round a wire of appropriate diameter in one operation with forceps. In the case of the 6·5 mm. × 2·5 mm. strips eventually used for common shrews, the wire is 2 mm. in

diameter. Test rings from 6 mm. strips were also bent round 2 mm. wire, while those from 7·5 mm. strips were bent round wire 2·8 mm. in diameter. A strip width of 2·5 mm. is about the smallest on which numbers can be satisfactorily stamped with a 1/16 in. die.

Two sizes of ring were tried in the first instance, 7·5 mm. × 3 mm. (average weight 52 mg.) and 6 mm. × 3 mm. (average weight 40 mg.). Later, since it seemed that irritation might be caused by a ring which was too high to slide to and fro, as well as by a ring which was too tight to rotate freely (see Fig. 1), the width of the strip was reduced, and sizes 6·5 mm. × 2·5 mm. (average weight 38 mg.) and 6 mm × 2·5 mm. (average weight 35 mg.) were tried. The results of the trials are summarized in Table 1.

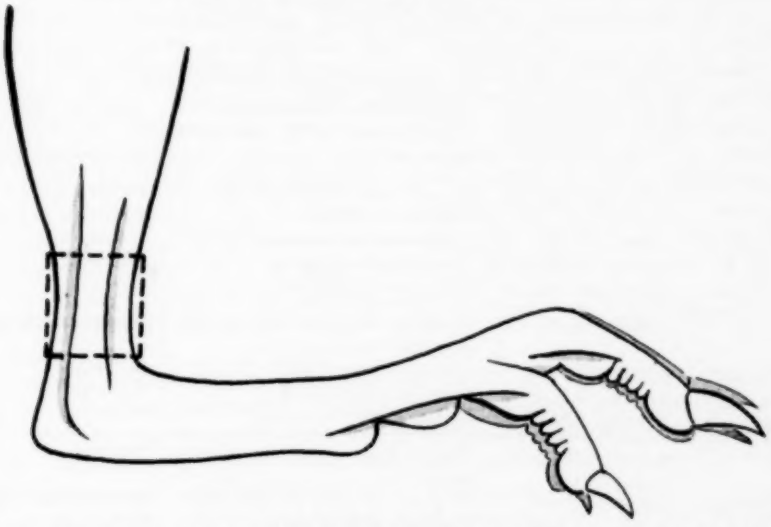

Fig. 1.—Diagram of ankle region of *Crocidura suaveolens cassiteridum* to show how height of ring is important as well as diameter in avoiding irritation. The dotted outline indicates the position of a ring which might rotate easily, but not be free to move up and down, and might therefore cause irritation.

It will be seen from Table 1 that no specific recommendation of a suitable ring size is made for *C. suaveolens cassiteridum*, while that for *Sorex minutus* is still tentative. It seems likely that 6 mm. × 2·5 mm. is the best size for *Sorex minutus*, but owing to the difficulty of keeping this species for long periods in the laboratory, no individual has worn a ring for a long enough period to ensure that irritation will not develop.

In the case of the Scilly shrew, it may well be that a ring of size 7 mm. × 2·5 mm. would fit. This would have a diameter intermediate between the 7·5 mm. ring which was too large and the 6·5 mm. ring which was too small. Another possibility exists, however—there is a strong subjective impression that the development of ring irritation by these shrews was exceptionally frequent during April, often among animals which had worn the rings for a

TABLE 1

Results of trials of four sizes of leg rings on five species of very small mammals.

Species	Ring size	No. of tests	Result	Conclusion
S.araneus	7·5 mm. × 3 mm.	1	Animal wore ring without harm for 146 days until natural death.	Ring rather loose, might be too large on some individuals.
	6·5mm. × 2·5mm.	2	Tolerated well for 11 days and 72 days until natural death.	**Recommended size.**
	6 mm. × 3 mm.	1	Irritation after 82 days.	Too small.
	6 mm. × 2·5mm.	2	Worn uneventfully until natural death after 11 days in one case; irritation after 33 days in other case.	Too small.
S.minutus	6·5mm. × 2·5mm.	1	Slipped right off after 4 days.	Too large.
	6 mm. × 3 mm.	1	Died natural death after 1 day.	Insufficient data.
	6 mm. × 2·5 mm.	1	Tolerated well for 34 days until natural death.	Probably best size, but more data needed.
C.suaveolens	7·5mm. × 3 mm.	2	Slipped down over ankle after 9 days and 37 days.	Too large.
	6·5mm. × 2·5mm.	2	Irritation after 26 days and 31 days.	Too small.
	6 mm. × 3 mm.	1	Irritation after 46 days.	Too small.
	6 mm. × 2·5mm.	1	Irritation after 19 days.	Too small.
N.fodiens	7·5mm. × 3 mm.	2	Tolerated well for 10 days and 143 days until natural death.	**Recommended size.**
	6·5mm. × 2·5mm.	1	Irritation after 54 days.	Too small.
	6 mm. × 3 mm.	1	Irritation after 3 days.	Too small.
	6 mm. × 2·5mm.	1	Irritation after 84 days.	Too small.
M.minutus	7·5mm. × 3 mm.	1	Slipped down over ankle after 2 days.	Too large.
	6·5mm. × 2·5mm.	1	Worn uneventfully for 205+ days	**Recommended size.**
	6 mm. × 3 mm.	1	Irritation after 35 days.	Too small.
	6 mm. × 2·5mm.	1	Irritation after 15 days.	Too small.

long time (1½ to 3 months). This impression cannot be verified, unfortunately, because the data are too few and, since these trials were not planned as an experiment, not in a form suitable for statistical analysis. It is interesting to note, however, that Kubik (1951), Dehnel (1952), and Crowcroft (1956) have all commented upon the sharp growth of shrews upon reaching maturity in the spring. It is possible, therefore, that *Crocidura suaveolens* grows at this time to such an extent that a ring small enough to stay on a sub-adult is likely to be too small for an adult. Further investigation is needed to explore this possibility.

The 6·5 mm. × 2·5 mm. size decided upon for common shrews was put into production, and suitable application pliers designed and made (Pl. 1, fig. 2). Shrews have worn the rings in the field for up to 134 days without ill effect, but careful watch should be kept for the occasional shrew which may develop irritation in the spring. These rings are rather smaller than those found

satisfactory for *S. araneus* by Miss Nora Croin-Michielsen, of the University of Leiden. She tells us that she uses silver strips 2 mm. × 7·6 mm. which bend into a ring of outside diameter about 2·5 mm. Since shrews have weak teeth and jaws, the soft metal is not found to be a disadvantage, and the numbers remain readable. A positive advantage of the silver ring is the ease with which it can be widened, or removed entirely and transferred to the other hind leg, if it becomes too tight when the shrew gains in size and weight at the beginning of the reproductive season.

A further advantage is found by Miss Croin-Michielsen in the silver ring—if a radioactive ring is needed so that the movements of a shrew may be followed using a suitable radiation counter, the entire ring may be activated. The rings are sent to the atomic pile at Kjeller, Norway, for this purpose, and each is given a specific activity of about 200 μc. The half-life of the radioactive isotope Ag^{110m} is 270 days—this is adequate for most purposes with such a short-lived animal as the common shrew, and such a short half-life reduces possible danger from lost rings. These rings might perhaps be criticised on the grounds that their relatively high specific activity of 200 μc exposes their wearers to the possibility of radiation damage and consequent interference with normal behaviour ; especially since, although Ag^{110m} is a β-emitter, no β-radiation shield is incorporated. Little is known about the effects of ionising radiation on shrews, but it would seem a sensible precaution to expose them to the absolute minimum of radioactivity, and at the same time screen them from the particularly harmful β-radiation. Such a screen would not interfere with the process of tracing the animals, since only γ-radiation is used for this purpose.

The radioactive rings used by the authors for tracing the movements of shrews are based on the design of Godfrey (1954) with some improvements. The main problem was to reduce weight ; the extra load on rings of Godfrey's design, where the radioactive cobalt was carried embedded in plaster of Paris in a brass tube soldered to the ring, was about 100 mg. Of this only 5-10 mg. was cobalt. Using the design recommended here, the extra load is less than 30 mg. (11·5 mg. cobalt) so that the total weight of a radioactive shrew ring is only 67 mg.

The details of the preparation of the radioactive rings (carried out at the Atomic Energy Research Establishment, Harwell) are as follows—a 1 mm. cobalt rod is sheathed in nickel by pushing it into a tight-fitting nickel tube of a wall thickness of 0·25 mm. The sheathed rod is parted off into 1·6 mm. lengths, and these small lengths are irradiated in a pile until each has a specific activity of about 50 μc. This activity is due to the conversion of some of the cobalt to Co^{60} ; the nickel sheath acquires negligible radioactivity in the process, and so may be safely handled. Each 1·6 mm. rod of nickel-sheathed cobalt is then soldered with platinum solder to an ordinary 6·5 mm. × 2·5 mm. shrew ring, care being taken to cover the bare ends of the cobalt rod with solder. The nickel and solder then absorb the harmful β particles, and so protect the shrew from them, but present no barrier to the γ-radiation by which the animal is traced. The radioactive rings and their application pliers are shown in Pl. 1, fig. 4.

A ring identical in structure to that just described, but not radioactive, was worn by a shrew in the laboratory without harm for 65 days. In the field radioactive rings have not so far been left on longer than a week at a time. No radiation damage to the shrews has been observed, either at the time or at subsequent recaptures, from such periods of use. It is difficult to make more than a very rough guess at the dose rates produced in various parts of an animal's body by a radiation source attached rather loosely near the end of one of its appendages, but it seems probable that only local damage is likely to be caused by a source as small as 50 μc, even on such a small animal as a shrew, and even with prolonged exposure. Such damage is not inevitable, but as long as the possibility exists, it seems sensible to proceed cautiously with field trials, and leave the radioactive rings on the shrews for only a few days until something is known of their effect.

The low specific activity of 50 μc per ring, which was chosen to minimise the risk of radiation damage to the shrews, increases the difficulty of their detection with a Geiger counter, especially on Dartmoor where there is a high level of background radiation from the rock. It is hoped soon, however, to use a scintillation counter which will incorporate a filter for γ-radiation of lower energy—below, say, 0·5 MeV. This would not interfere with the gamma rays from Co^{60} (1·17 MeV and 1·33 MeV), but would cut out much of the background radiation and so give a marked improvement in the signal/background ratio. Ag^{110m}, with abundant gamma energies between 0·89 and 1·39 MeV, could also be used with such a modified counter.

The authors are most grateful to Dr Dennis Chitty, Mr D. A. Kempson and Mr K. Marsland, of the Bureau of Animal Population, Oxford ; the first two for permission to publish details of their mouse and vole rings, and the last for the care and trouble he took in making trial batches of each size of ring used by the authors. They also wish to thank Mr B. Metcalfe of the Isotope Division, Atomic Energy Research Establishment, Harwell, for his help in the development and manufacture of the radioactive rings.

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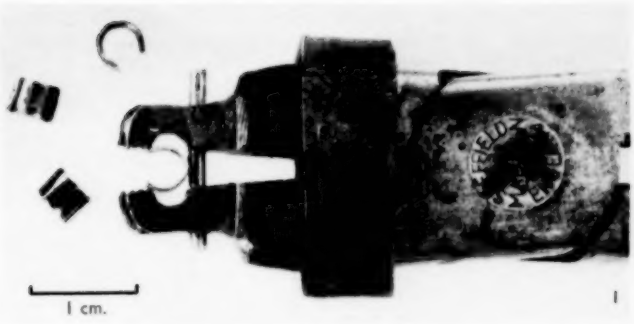
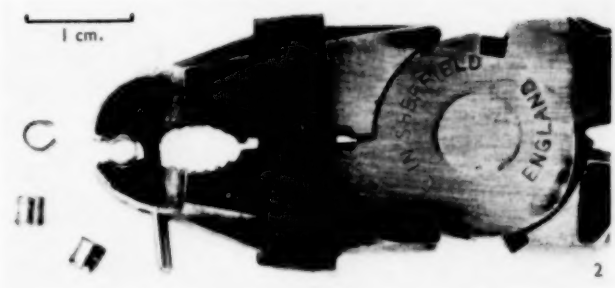
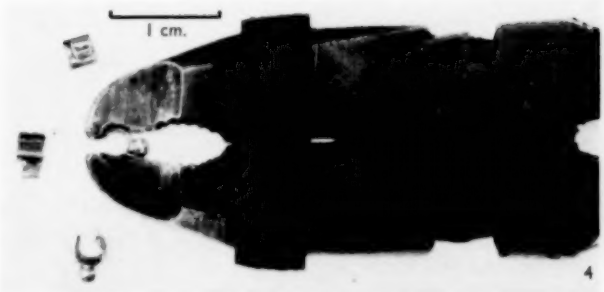
EXPLANATION OF THE PLATE

Fig. 1.—Rings and application pliers developed at the Bureau of Animal Population, Oxford, for use on such species as *Apodemus sylvaticus*, *Clethrionomys glareolus* and *Microtus agrestis*. The ring is held gently but firmly in the jaws of the pliers by the rubber band,







Rings for marking very small mammals.

so that the prepared pliers may be hung round the operator's neck by a cord attached to one handle, leaving the hands free to take the animal to be ringed out of the trap.

Fig. 2.—Rings of smaller size for use on *Sorex araneus*. These and the application pliers are essentially similar to those shown in Fig. 1.

Fig. 3.—Dispenser to carry fifty large rings as used by the Bureau of Animal Population. The rings are stocked in batches of fifty on a wire with a pointed end. The dispenser is loaded by unscrewing the double nut at the bottom, placing the point of the stock wire in a depression at the end of the dispenser, and sliding the rings on. Single rings are removed for use by pushing them up against the spring until a narrow place on the dispenser rod is reached (this shows dark in the photograph). The safety pin allows the dispenser to be attached conveniently to the clothing.

Fig. 4.—Radioactive rings for *Sorex araneus*, and application pliers.

Ian Linn
Joy Shillito

SOME OBSERVATIONS ON THE DATES OF PUPPING, AND THE INCIDENCE OF PARTIAL RUST AND ORANGE COLORATION IN GREY SEAL COWS, *HALICHOERUS GRYPUS* (Fabricius), ON LUNGA, TRESHNISH ISLES, ARGYLL.

Four visits to Lunga, Treshnish Isles, were made in 1956, 1958 and 1959, by permission of the owner, Col. Niall Rankin. On 19th September, 1956 only a short visit was possible and pups were seen on Sgeir a Chaisteil (four), and the Dorlinn (eight), see Fig. 1. Around the southern point, on its erosion platform and in the geoghs B and C, an estimated number of twenty more pups was seen from seaward.

Lunga, Treshnish Isles. Pupping.

Date	No. of pups		Birthdays of pups		Fraser Darling's date, first pup. Erosion platform
	Counted	Estimated	On beaches	On erosion platform	
19th Sept. 1956	12	c.20	Oldest 16th Sept. Young. 19th Sept.	no data	9th Sept. 1937
12th to 18th Sept. 1958	10	—	Oldest 14th Sept. Young. 17th Sept.	Oldest 22nd Aug. Young, 5th Sept.	
13th Sept. 1959	17	—	Oldest 9th Sept.	Oldest 19th Aug.	
16th Sept. 1959	26	—	Young, 15th Sept.	Young, 8th Sept.	

The second visit was for six days, 12th to 18th September, 1958. During this period ten pups were found, all in the southern part and none at the Dorlinn nor Sgeir a Chaisteil. Details of dates of the births of the oldest and youngest pups are shown in the Table. Dates before 12th September are, of course, estimated ; pups born later were observed daily. The visits on 13th and 16th

September, 1959, were by the day and on the 16th six pups were seen on Sgeir a Chaisteil, three at the western entrance to the Dorlinn and one at its eastern entrance.

Of those pups seen in 1958, five were on the southern erosion platform at A, (seven in 1959), and five in the geoghs B and C, (six in 1959). It will be seen that in 1958 there is an interval of nine days between the last estimated birthday on the platform and the first observed birthday on a geogh, whilst in

Lunga, Treshnish Isles: Lat. 56°30′N. Long. 6°25′W., showing sea levels at high and low ordinary spring tides.

1959 the interval is one day. Fraser Darling records the birth of the first pup on the whole island on the southern erosion platform on 9th September, 1937. Pups are also born on the Dutchman's Cap and it is fairly clear that the exact location of the first pups, and indeed of later ones, may vary from year to year, possibly dependent upon the weather conditions prevailing.

The physical conditions vary from point to point. The pups on Sgeir a Chaisteil were seen on or above the seaweed-covered foreshore ; those in the geoghs on large-pebble beaches protected at the sides by sheer rock cliffs ; while those on the southern erosion platform were on bare larval rock with rock pools at low tide.

Grey seal cows were observed with partial rust coloration of throat, flanks and the undersides of the hind flippers. Other cows were seen with a rich orange coloration of the same parts. In both cases the colour of the pelage of other parts of the body was normal.

On 19th September, 1956 two cows were seen with pale rust coloration of the pelage parts referred to above, and two with rich orange coloration. During six days from 12th to 18th September, 1958, another cow was seen with bright orange colours of the chin and throat the remainder of the pelage being below water and not visible, and on 13th September 1959 a similar cow was seen in the water off geogh B.

The writer has not observed grey seal cows with rust or orange coloration, as described, elsewhere in the British Isles. Hewer and Backhouse have seen on islands adjoining Oronsay, in September and October, 1956 and 1957, examples of rust coloration on head and throat; they also record a deep ochreous-coloured cow in 1957 (Backhouse& Hewer, 1960). Oronsay is about 33 statute miles from Lunga, in a southerly direction, and is the next breeding colony southwards.

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Oliver Hook

UNUSUAL COLOURING IN THE GREY SEAL, *HALICHOERUS GRYPUS* (Fabricius)

Cows of the grey seal usually have basic pelage colours ranging through browns and greys, but they may have tonal qualities within these colours from near white to black. Thus a cow may have a dark grey dorsal region with a pale grey ventrum and so on, but usually the animals, though diversely patterned, fall within these colour ranges.

In 1956 a cow was seen on E. Ghaoidemal, an island off Oronsay in the Ebudes of Scotland having a brilliant orange-red coloration of the head and neck regions, merging with the more normal dark grey colouring of the neck and trunk. The orange-red coloration was also evident on the plantar surfaces of all four limbs. In the same pool another cow, which was basically a pale fawn in colour showed a delicate dusky red coloration of the head and neck region .

So unusual were these animals that the observation was reported briefly shortly afterwards (Backhouse & Hewer, 1957). Further observations have shown that these observations were not so unusual in the area under study as was at first supposed. In the same year (1956) Hook saw cows on Lunga, an island some 33 miles to the north east, exhibiting rust and orange coloration.

In 1957 the seals on the islands off Oronsay were again studied and coloration of the animals noted. Although the orange-red coloured animals which had been observed in the preceding year were not seen again, a number of animals were seen exhibiting colour variations of a red or yellowish nature. One cow showed a muzzle of a strong yellow ochre colour, the same colour extending down on to the neck and ventrum. Another cow had an intense russet brown coloration of the muzzle. Lemon-yellow pigmentation of the pale background portion of the neck and belly was quite common here as elsewhere.

Although the creamy yellow coloration of the belly is quite common in cows of other colonies studied, the presence of ochreous, reddish and orange coloration of the muzzle region of cows has not been noticed, though the colours may well occur elsewhere. Darling (1939) suggested that the bulls of the Treshnish colony (which includes Lunga) appeared to be more generally olive brown in colour than those on North Rona and he suggested that colour variations may help in providing evidence for or against the autonomy of the various grey seal colonies. His example of overall colour values within the generally accepted range would be difficult to substantiate however in the field, in view of the deceptive effects both of wetting the fur and of the moult. Without a large number of study skins therefore, which are not available now or likely to be so in the near future, Darling's criterion can hardly be used. The presence of such strong colour variants as is now described in a single colony group is, however, much more prominent and easy to access as an indicator. The evidence put forward is now further supported by Hook's (1960) observations on the Treshnish.

In addition to simple colour variants there is also the possible pattern variation. It will be seen that in all the above cases the colour variation has followed a similar pattern, namely around the muzzle region. Such a pattern arrangement is quite common in the Oronsay colony and not limited to variant colours. One cow was observed for instance having an overall greyish colour but with an intense black muzzle (see also Darling).

It is submitted that although minor colour variations in the grey seal are of little value in the present state of skins available for study, the colour and possibly pattern variations such as those described here are obvious in the field and may be of considerable value in colony studies of the grey seal. Furthermore the evidence given here does appear to fit the authors' contention reported elsewhere (Hewer & Backhouse, *in lit*) that the Treshnish and Oronsay colonies may possibly be considered as a single large colony group.

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K. M. Backhouse
H. R. Hewer

GOLDEN HAMSTERS, *MESOCRICETUS AURATUS* (Waterhouse) LIVING FREE IN AN URBAN HABITAT

In August 1958 the attention of the Chief Public Health Officer of Bath was drawn to what was then thought to be a rat infestation in a pet-shop in an old part of the city. Investigation by the Rodent Officer showed that foodstuffs in the pet-shop and the greengrocery on the other side of the road had been damaged. Both premises were old and had basements which were partly under the road. The basements themselves were divided by brick and plaster walls into several smaller rooms, the outer walls being of stone. Both basements were used to store foodstuffs and it was in the store-rooms that damage was first noticed. Oats had been taken from the pet-shop and peas and cauliflowers damaged in the greengrocer's. Several small holes were also discovered between stones in the walls and the floor of the basements, the earth scraped from the holes being heaped outside each hole.

The owner of the pet-shop recalled that six hamsters *Mesocricetus auratus* Waterhouse kept in a wooden cage had gnawed their way out a year previously. On 13th August, 1958, two days after the premises were first visited, eighteen break-back traps were laid in the pet shop. The traps were baited with small pieces of cauliflower. Forty-four hamsters were caught before the end of August ; forty in the first week. As no others were trapped during the first week of September, the entrances to the holes were filled in on 8th September. The holes were not re-opened until the night of 22nd—23rd September. The break-back traps were then re-set and two more hamsters, making the total forty-six in the pet shop, were trapped on 26th September and 2nd October. Further trapping proved negative and the holes were again re-sealed and four months later had not been re-opened.

Four other hamsters had been captured previously by the greengrocer himself and in addition one fell into an empty dustbin in a house adjoining the pet-shop and was captured alive : another was trapped in an adjacent butcher's shop. The total number of hamsters accounted for was fifty-two. Of the forty-eight animals taken by the local authority, twenty were males and twenty-eight females.

BIOLOGY OF THE GOLDEN HAMSTER

Geographical distribution

The golden hamster is a member of the family Cricetidae (subfamily Cricetinae) and its nearest British relatives are the voles (subfamily Microtinae). Harrison Matthews (1952) suggests that as the golden hamster appears to have similar habits to the voles it may occupy a similar ecological niche. Its only

known native habitat is Syria and even in that country its range may be restricted to the area around Aleppo. It was near Aleppo in 1930 that I. Aharoni (B. Aharoni, 1932) found the only live animals so far discovered this century. He dug up a burrow and captured an adult female with twelve young, and all the golden hamsters since bred in every continent except Australasia are descendants of this original stock. There is one record of the animal being kept unsuccessfully in England during the last century (Reynolds 1950). They were reintroduced into this country in 1931 (Adler, 1948) and now, besides being used extensively as an experimental animal in laboratory research, the golden hamster has become a most popular children's pet.

Burrow system

Like other hamsters, the golden hamster is nocturnal and lives in burrows in the ground. Hamster burrows usually have separate chambers for nesting and for storing food. The family dug up by Aharoni was obtained from a burrow system two metres deep. It is probable that, during the winter months, these hamsters hibernate and also feed on food hoarded in the burrow.

Diet

Little is known of the food of golden hamsters in their native habitat. As the grain fields of Syria are the natural habitat of this hamster it is probable that cereals form a large part of its diet. Bruce & Hindle (1934) believe that in nature golden hamsters are probably herbivorous, although in captivity they are omnivorous and apart from grain will eat roots, nuts, bread and meat.

Hibernation

The golden hamster most probably hibernates in Syria during the winter. Experiments have shown that it can be induced to hibernate at the start of cold weather. Schua & Schnorrenberg (1954) report that the number of golden hamsters in hibernation increases with the passing of a " cold-front " and it is possible that light plays a role. They do not fatten prior to hibernation but are stimulated by cold to store food. During hibernation the oxygen consumption is reduced considerably and the body temperature falls to near that of the environment (Lyman, 1954). In Germany, Petzsch has shown that golden hamsters can survive hibernation under conditions similar to those experienced by the native European hamster. He successfully kept golden hamsters in cages in an unheated garage over the winter months, although the temperature fell as low as −6°C. Herter & Lanterbach (1955) have also shown experimentally that golden hamsters can survive a hard German winter without suffering. In a close study of their hibernation in the laboratory in the U.S.A. Lyman records that they may remain dormant for many days. The longest hibernation was seven days but he believes that in completely undisturbed surroundings they would hibernate much longer. The golden hamster captured alive at Bath has hibernated on several occasions in a cage at temperatures ranging between 4°C. and 8°C. when left undisturbed. The hibernation lasts two or three days, the animal curling itself into a ball with the nose beneath the tail. At Bath, damage to the stored foods was not noticeable until the spring following

the autumn in which the hamsters escaped so that it is possible that they did in fact hibernate over the winter months. The last two hamsters trapped in the pet-shop in September and October remained within the sealed burrows for at least two weeks before they emerged and were captured.

Reproduction

Nothing is known of the breeding of the golden hamster in the wild but the reproductive cycle has been studied extensively in the laboratory (Bruce & Hindle, 1934 ; Deanesly, 1938 ; Bond, 1945). The gestation period is extremely short—being only sixteen days. Although females can come into breeding condition within one month (Selle, 1956) such early breeding often results in the loss of the litter (Poiley, 1950) and more successful matings occur with animals 50 to 70 days old. There may be up to twelve young in a litter (average 6 to 7). According to Deanesly few females have more than three or four litters and subsequent pregnancies may end in abortion. In the laboratory at 25°C they breed at all times of the year, but less frequently during the winter months (Brust, 1953). Deanesly attributes this to the lower fertility of males during the winter months. At normal temperatures Frank & Frapps (1945) and Peczenick (1942) found that there was no breeding between October and January. Davis (1951) however has reported on the winter breeding of golden hamsters in unheated accommodation.

Discussion

Countries on the Continent which have experienced considerable damage by the European hamster (*Cricetus cricetus* L.) are alive to the possible dangers of the golden hamster becoming established in the wild. Experimental work has shown that there are many parallels in the behaviour of the two species. Wijngaarden & de Vries (1956) have indicated that the golden hamster is a potential danger to field crops and stored products in Holland. In Germany, Petzsch (1959) has also drawn attention to the possible danger of this animal becoming a pest. In some parts of Germany and also in Alsace (Kuchly, 1958) the European hamster is already a serious pest doing damage in grain and clover fields. *Cricetus barabensis griseus* has also been known to do much damage to grain and bean crops in China.

Although, as Petzsch says, further open-air trials with golden hamsters are necessary to confirm that these animals can withstand hard winters, it does seem that severe climatic conditions may not be as great a bar to their establishment in the wild as was at first thought. If these hamsters can survive the winter of north Europe there would seem to be no reason, unless the climate is too damp, why they cannot survive the relatively milder cold season in the United Kingdom.

More serious obstacles to their possible establishment in this and other countries may be the need to find suitable terrain or food and to compete with native mammals and birds. If during hibernation in the wild the golden hamster awakens periodically to feed as it does in the laboratory, an adequate supply of non-perishable food would seem to be of paramount importance to its survival. Lyman has shown that if food cannot be hoarded the golden hamster can delay premature hibernation which would result in starvation.

Reed (1946) believes it unlikely that golden hamsters can ever become established in the western hemisphere in competition with the fauna already present but if they could, the coast of South California is most like its natural habitat. In the United Kingdom, apart from cats and dogs, the common rat, weasel, stoat and fox among other mammals come to mind as possible predators. Apart from poisoning or trapping by man, the main enemies in urban areas would presumably be the cat and dog. Neither was present in the basements of the shops in Bath. Before trapping was undertaken a phosphorus poison and another rodenticide—warfarin, a blood anti-coagulant, were put down in the greengrocery. The warfarin bait was removed but no bodies were discovered and the bait may have been carried in the cheek pouches and stored. Kuchly in Alsace tried out various control measures against the European hamster in the field and also found that phosphorus baits are not particularly successful. The main methods employed are flooding and gassing the holes.

The importance of a single infestation can be exaggerated but it must not be thought that hamster escapes are infrequent : for dealers handle large numbers of these animals and there are also reports of pets straying. Some countries, such as Australia and New Zealand, parts of which could be particularly favourable to the spread of the golden hamster, ban its import. In Germany, Petzsch suggests that apart from those animals used in laboratory research, golden hamsters should be kept only by authorized persons.

ACKNOWLEDGMENTS

Many thanks are due to my former colleague the late A. H. Hopkins and to Mr A. Tyler, M.B.E., Chief Public Health Inspector of Bath and Mr R. E. Hanham the Rodent Officer.

SUMMARY

1. In the autumn of 1957, six golden hamsters *Mesocricetus auratus* Waterhouse escaped in the unheated basement of a pet shop in the city of Bath. One year later fifty were caught, all but one in break-back traps.

2. The status of the golden hamster as a possible pest is discussed. Trapping appears to be an efficient control method against these animals living in urban habitats ; they could however prove more difficult to control if established in rural areas.

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F. P. Rowe

AN UNUSUAL RODENT SKULL

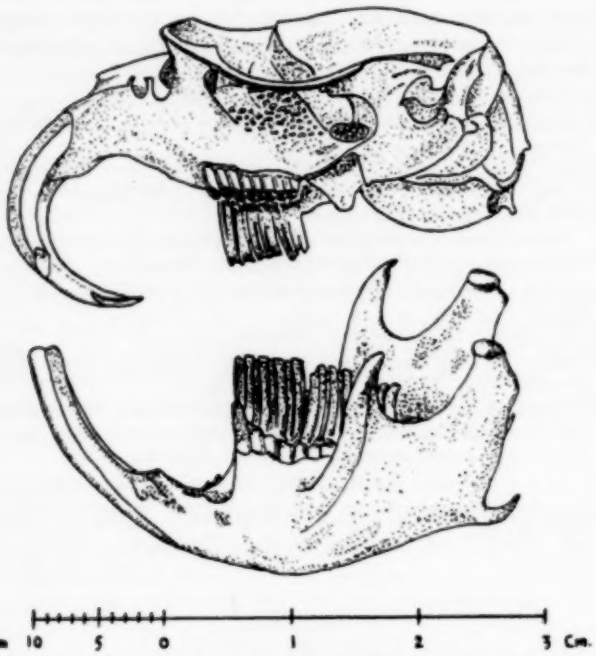
A number of live water voles (*Arvicola amphibius amphibius* Linnaeus) were kept in captivity for long periods in connection with food preference tests.

They were kept separately in circular sheet metal enclosures two feet in diameter placed on sawdust, on a concrete floor. A nest box, food and water were placed inside each bin.

On examining the body of a water vole which died after eighteen months in captivity, it was found that part of its left upper incisor had broken off. This damage prevented the animal from gnawing properly, so that the incisors continued to grow until they prevented it from feeding.

It is well known that the molar teeth of rats and mice are rooted and do not continue to grow after the animals have reached the adult stage. The incisors, however, are not rooted and occasionally damage to these will cause excessive growth which can result in starvation. In water voles, on the other hand, the molar teeth also are not rooted and continue to grow during the

lifetime of the animal (Matthews, 1952). In the case of this water vole therefore, damage to the incisor led also to excessive growth of the molars on the right side of the jaw, which grew to three times their normal length.



Water vole skull from left side. The skull measures 4·00 cm. from the front of the incisors to the lower edge of the occipital region.

The particulars of this water vole are as follows :—

Sex	Male
Origin	Trapped in a pond near Lingfield, Surrey on July 8, 1956.
Died	December 10, 1957.
Weight when caught	192 g.
Weight at death	80 g.
Head and Body Length	170 mm.
Tail Length	115 mm.
Hindfoot length	38 mm.

Thanks are due to Mr A. G. Jenson, F.R.I.B.A., who kindly drew the illustration.

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C. H. B. Worrall

ROAD MORTALITY OF THE HEDGEHOG (*ERINACEUS EUROPAEUS* L.) IN NEW ZEALAND

The European hedgehog was introduced to the South Island of New Zealand in the 1870's and into the North Island about 1910. Since then the animal has become widely distributed and is now abundant in settled areas throughout the country (Wodzicki, 1950). Between 1950 and 1958 members of the Animal Ecology Section, Department of Scientific and Industrial Research, made many trips by road to different parts of the North Island and counted the number of dead animals encountered on the way. These "road counts" were made while travelling at speeds of from 35 to 50 miles per hour over macadamized surfaces

Fig. 1.—Map of the North Island of New Zealand showing localities and roads on which observations were made.

during fine weather only. With some practice it became easy to identify the corpses and it was found that different observers travelling over the same route in different vehicles obtained very similar counts.

The number of hedgehogs killed on the road varied markedly according to the locality and the season. Thus on the central volcanic plateau of the North Island, a sparsely settled area between 2,000 and 3,000 feet above sea level, no more than 3·3 hedgehogs per hundred miles of road were noted. All these animals were in the immediate vicinity of the towns Taupo, Waiouru and Taihape. (Fig. 1). It is estimated that between two and three hundred motor cars use the main road over the plateau daily.

Frequent road counts were made in the southern part of the North Island between Waikanae and Levin (twenty-two miles) and from Woodville to the Takapau (thirty-eight miles). It is estimated that the first of these two roads carried about 2,600 cars daily and the second is used by about a thousand cars daily. Both roads pass through rolling pastoral land and through many villages with extensive suburbs.

During the summer months hedgehogs are by far the most frequent road casualty. The total number of corpses counted on thirteen summer rides over these two stretches of road was :—

Hedgehog	(*Erinaceus europæus* L.)	482
Opossum	(*Trichosurus vulpecula* Kerr)	36
Australian Magpie	(*Gymnorhina hypoleuca* Gould and *G. tibicen* Latham)	18
Rabbit	(*Oryctolagus cuniculus* L.)	13
Hare	(*Lepus europæus* L.)	12
Harrier Hawk	(*Circus approximans* Gould)	5
Rat	(*Rattus rattus* L. and *R. norvegicus* Berkenhout)	4

Of a total of 570 mammals and birds killed, hedgehogs accounted for 84·5 per cent.

Hedgehogs were most frequently run over on the outskirts of small towns although many were noted in open country, especially where hedges or scrub provided cover. During very dry weather fewer were seen in open country and casualties were more common near rivers and damp areas. Seasonal variations in the number of hedgehogs counted were very marked as is shown in Table 1.

The most striking variation in the number of animals killed is the drop from mid-June to mid-September and this is undoubtedly related to the period of hibernation, though it is evident that not all animals were hibernating during the period.

In early spring, or mid-September, the number of dead animals rose abruptly to a high level and it is believed that this can be attributed to an increased activity of the population following the emergence of animals from hibernation.

During October the high mortality rate was sustained. From January to March the numbers were again high but dropped with the approach of winter.

Although large numbers were run over during September, October and January, few of these were juveniles. Of thirty-five damaged corpses examined during these months only one was that of a juvenile animal so it cannot, therefore, be maintained that the high death rate in these months was the result of

TABLE 1

Hedgehog road counts

Month	A. Waikanae Bridge to Levin Post Office (22 mls)		B. Woodville to Takapau Turnoff (38 mls)	
	Number of dead hedgehogs on the road	Mean / Number per 100 miles	Number of dead hedgehogs on the road	Mean / Number per 100 miles
Jan.	18 11 16 4 8 38 11	15·1 / 68·6	14 15 11 13 60	22·6 / 59·4
Feb.	7 16 6 18	11·7 / 53·1	24 18 26	22·6 / 59·4
Mar.	22 22 18 8 12 8	15·0 / 68·1	23 15 38	25·3 / 65·3
Apr.	10 8	9·0 / 45·4	No count made	— / —
May	2	2·0 / 9·0	12 27	19·5 / 51·3
June	(Before 15th) 6 6	6·0 / 27·3	18 14	16·0 / 42·1
	(After 15th) 3	3·0 / 13·6	6	6·0 / 15·8
July	0 0 0	0 / 0	3 2 6	3·7 / 9·7
Aug.	4 0	2·0 / 9·0	1 1	1·0 / 2·6
Sept.	(Before 15th) 0 0	0 / 0	4 3	3·5 / 9·2
	(After 15th) 16 10	13·0 / 59·0	14 17 18	16·3 / 42·4
Oct.	12 12 18 13 25	16·0 / 72·6	15 10 17 11 11	12·8 / 33·3
Nov.	9	9·0 / 40·8	No count made	— / —
Dec.	10 10 6	8·6 / 39·0	15 19	17·0 / 44·7

inexperienced animals venturing on to the roads. It would appear that the highest mortality rate occurs before the advent of the litters, and is probably a reflection of the increased activity associated with the breeding season. A similar situation was found in Michigan, United States of America, where cotton-tail rabbits, musk rats and opossums (*Didelphis*) were most frequently run over at the onset of the breeding season. (Haugen, 1944).

When the results of these New Zealand figures are expressed as the number of hedgehog corpses per hundred miles of road, they may be compared with the observations of Davies (1957) in Hampshire, England (Fig. 2). The English data are based on two years' observations.

There appears to be the same falling away in the death rate during the winter months but the hibernation period is of only three months in New Zealand compared with the four or five months in England. Two periods of higher mortality also occur in Southern England and may also precede the advent of the litters.

The most striking difference between Davies' observations and those made in New Zealand is in the toal number of animals run over. The New Zealand figures are consistently very much higher than the English ones and this is supported by other road counts (for example 132 bodies were counted on the 135 miles of road between Waikanae and Taihape in October, 1951). Now although the number of corpses on the road is a result of the interaction of many factors (such as the volume of traffic and the disappearance rate of the bodies) about which very little is known, it nevertheless seems probable that the wide difference between the New Zealand and Hampshire figures can be accounted for on the basis of a denser hedgehog population in New Zealand.

Traffic figures were kindly provided by the Transport Department. Most of the road counts were made by Dr K. Wodzicki, Officer in Charge, P. C.

Bull, R. H. Taylor and other members of the Animal Ecology Section, Department of Scientific and Industrial Research, and their help is gratefully acknowledged.

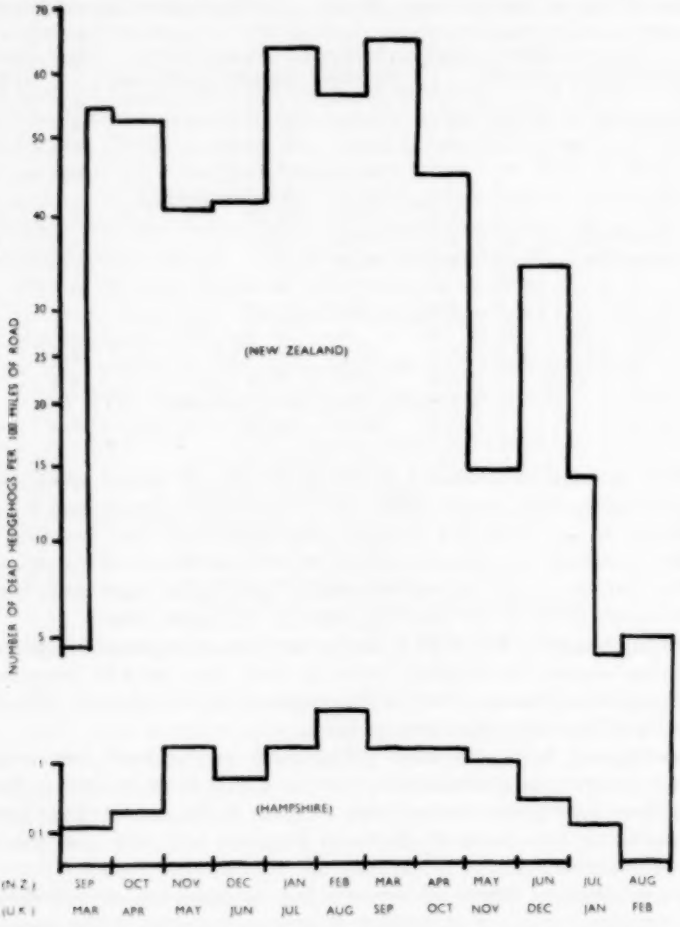

Fig. 2.—Comparison of the number of hedgehogs killed throughout the year on roads in the southern part of the North Island, New Zealand and on roads in Hampshire, England, Davies (1957). His figures have been arranged in monthly periods that correspond seasonally with the New Zealand ones so that the variations can be directly compared.

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